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New for
2000

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HOT NOW
WHAT'S IN
THE FUTURE
FOR RC?



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Kyosho 1/8 MP-6 Sports

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January 2000
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ON THE COVER (clockwise from top): Futaba Super 3PJ; DuraTrax Nitro Quake; Trinity/Picco 12; Keyence A-07RZ reversing ESC; Trinity P2K rebuildable stock motor. Bottom left: Serpent Impulse. Bottom right: Kyosho MP-6 Sports.

Bring on the New Stuff!

Oh yeah; I'm ready. It's time to check out the latest, hottest, newest, bestest gear for the new year. But it's not just a new year, it's a new millennium; so you know the many manufacturers who make the RC world go 'round are digging deep to come up with the coolest stuff. Every year, there's one place to see it all under one roof: the National Model and Hobby Show in Chicago, IL. It's RC car mecca—a dreamland of gizmos and gadgetry to excite even the most well-traveled hobbyist. Can't make it to the show? No problem: every year, there's one place to see it all between glossy covers—the January issue of *Radio Control Car Action*! Our **"New For 2000"** show special includes all the coolest stuff from the big show—over 80 products in all!



January is also the month in which we reveal the winner of the coveted **"Reader's Ride of the Year"**



award. This time, a potent pair of monster trucks built by John Boyer won the title, and his machines are sure to inspire—particularly the "little guy." You'll see what I mean when you check out the article!

This month's big issue also features "Track Tests" of some of 2000's most exciting new rides. Looking to get into 1/8 scale on the cheap? Check out the **Kyosho MP-6 Sport**. Does the phrase "most innovative nitro touring car" get your blood pumping? The **Serpent Impulse 10** is all you. Just out for fun, or maybe you're looking for a detailed rig to spend some quality bench time with over the winter? The **Tamiya Wild Willy 2** has you covered on both counts.



And, finally, you'll no doubt notice some changes to the mag, and there's lots more new stuff to come as the year unfolds. Don't be shy about letting us know what you think! Remember, *Radio Control Car Action* is your magazine. I hope we'll hear from all of you soon!

Peter Vieira

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Cornering a Corally

You recently tested the Corally C4 touring car. I found it very interesting and started looking around for prices and distributors, but I found none! Is the car still available and, if it is, who distributes it? Your mag rocks. [email]

TIM MONDAY

The Dutch company hasn't sorted out its U.S. distribution yet, but you may find its kits in hardcore racing shops that order directly from Corally. If you'd like to contact Corally yourself, call 011-31-786212693, or email corally@worldonline.com.

—Pete

RC Legos?

Hey, Pete, I liked your "Project Wide-Track F-150" (December 1999), but wouldn't it be more accurate to call that thing a modified Blazing Star with a truck body? As soon as you put those arms on there, that's what it became. What do you think? [email]

JOE WHITE



Close, but not quite. The Blazing Star is molded entirely in black; I used the red parts that came with my F-150 kit—not that that's any big deal. A more important difference is the shock towers; I used the "shorties" from the F-150 instead of the tall towers included with the Blazing Star. This allowed me to mount the body without modification. When I had finished the article, I installed the tall shock towers and a set of long-travel HPI shocks to build the ultimate Tamiya Blazing Star. Shortly thereafter, Tamiya's Wild Willy 2 arrived, and I stole the long Blazing Star arms from my buggy to put on the Willy. That's the cool thing about Tamiya kits; once you have two or three, it's like having

an RC Lego set—everything seems to fit everything!

—Pete

Might as Well Jump

I recently bought an HPI RS4 MT. When I jump it, the front end drops like a rock and it tumbles end over end. Is there a way to solve this problem? [email]

KEVIN KNAAK

Kevin, it's all in the throttle. Don't let off the gas or hit the brake when the truck takes off; that will drop the nose every time. If you stay on the throttle, the truck should level out just fine. If you can't keep the nose up even when you keep the throttle wide open in the air, check out your suspension. Is there oil in the shocks? Do they operate smoothly? Do you have the preload set so that the dog-bones are level or only slightly angled down toward the wheels? If you answered "No" to any of these questions, you may have found your problem. If you answered "Yes" to all three, the problem might be the jump—not you or

your truck. If the jump has a severe lip or it isn't really a jump but more of an obstacle that you're just slamming the truck into, you'll never get it to land properly.

—Pete

Easy ESC

I recently purchased a Traxxas Rustler and am very pleased with it. I have upgraded to a Trinity Paradox Pro motor. I was also told to get an electronic speed control to help speed. Would this be hard to install for a beginner? Will it cut down run time? Is this even a smart choice? [email]

NICK TORGUSSON

To answer your questions: no, no and yes. As for the advice: if you

just run for fun, buy a reversing speed control (as a matter of fact, Traxxas makes its own: the XL-1. It's inexpensive, too—about \$40). Make sure that the ESC you buy has bullet connectors for the motor and a Tamiya-type battery plug (most do, including the XL-1). If you like your truck now, you'll love it with an ESC.

—Pete

More Power!

I have an RC10GT with a CVEC pipe, MIP temp gauge, Futaba 3PD radio, Losi tranny brace and a whole bunch of other good stuff. My current motor is a Dynamite 12S-PD. What is the biggest, baddest, most powerful motor I can fit into my GT? Is there a side-exhaust .21? Or is there a killer .15 that will pull the front wheels off the ground with just a touch of throttle?

ZACK

Virginia Beach, VA

You should be able to tune that Dynamite mill for all the performance you need, Zack, but if you want the craziest horsepower that can be bolted directly into a GT, check out the NovaRossi .12 (also sold under the HPI brand name). It has more grunt than any .15 I've seen, and you won't have to deal with any weird, hard-to-find adapter manifolds.

—Pete

Fiery Feldman

I have a Losi XX-4 with a Tekin Speedstar ESC and Futaba radio gear. The motor gets really hot. I had an X-Star, and its endbell melted. Then I bought a 14-turn GT motor and a Speed Gems 11-turn motor. Both of them get really hot, and I can't run my car because the solder heats up and comes off the motor, or the motor melts. I have tried 23-, 21- and 18-tooth pinions, and I run a stock spur (84T). I also cut a hole under the motor like the one on the XX-4 low-CG chassis, and I have the Trinity monster blue heat sink. My drive train is really smooth, and I have a stock body with a portion cut off near the motor. [email]

MICHAEL FELDMAN

Ordinarily, I'd just kick this letter over to "Troubleshooting," but I

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

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don't think the problem has anything to do with the car or the motors you tried (although I will suggest you check the gear mesh; it isn't too tight, is it?). I'm guessing that you simply run the car for play and don't let it cool between runs. Even a single pack that is run until it dumps will get a motor—any motor—very hot in just about any car with a reasonable gear ratio. I think the solution to your problem is to just take it easy.

—Pete

Will Drive for Free Stuff

What is sponsorship, and how do you get sponsored? I know I won't be sponsored soon, but someday, I might be. By the way, I wear out every issue of your magazine. [email]

S. BRAMLETT

A sponsor covers your racing expenses, either in part or completely. For the best of the best, that means free travel, free hotels, free food and free equipment. At the club level, you might get a "co-sponsorship" or another partial sponsorship deal wherein you're offered discounted equipment.

Getting sponsored is easy; just attend big races and win them. Type up your list of victories into a nice resume, then shop it around to all the manufacturers. Obviously, achieving the record it takes to lure a sponsor requires years of practice, lots of track time and travel, all of which will come at great expense to you. My advice to you is this: continue racing for the reason you entered the hobby—to have fun racing and meet new people with the same interest. If you win and moving up to the next level seems like fun, do it. If it feels like work, don't do it.

—Greg ■

Send a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we choose to feature your creation, you'll receive a free *Radio Control Car Action* decal sheet. You'll also be eligible to win a \$500 gift certificate from DuraTrax in the ninth annual "Readers' Rides of the Year Contest" in the fall of 2000. In case we need to contact you, write your address and phone number on your letter and on the back of every photo you send. Good luck!

Emmanuel Beaufils Tamiya GT-1

Emmanuel Beaufils of Le Mans, France, bought this 1998 Tamiya GT-1 and painted it to match the full-scale car run by the 1999 Toyota team who raced in the "24 hours of Le Mans." During an official presentation of Toyota Team Europe and the three full-scale Toyotas, Emmanuel drove his $\frac{1}{10}$ GT-1 out of the surprised crowd and momentarily parked it in front of the real racecars. Pictured are racers Allan McNish and Thierry Boutsen holding Emmanuel's RC car. They were just a few of the Toyota Team members who wanted to buy it, and we don't blame them!



Greg Rodriguez Tamiya Super Blackfoot

Greg Rodriguez of Alhambra, CA, read the *Radio Control Car Action* feature about monster trucks and decided to buy this Tamiya Super Blackfoot. It features sealed bearings throughout the drive train and front wheels, a Tekin Rebel ESC and a Trinity 15-turn double motor. The paint is Testor's Smoothster Yellow—Colors by Boyd. Greg says he doesn't race, but he enjoys using his truck to chase the dog around the front yard.

Randy Holder Associated T-3 & HPI RS4 MT

These two rides belong to Randy Holder of Douglasville, GA. The Tiger Associated T-3 (foreground) has Lunsford titanium turn-buckles, a Futaba S9402 servo, a Novak Cyclone speed control, R113 F receiver and Pro-Line's Blade tires on the front and Super Ts on the rear. It's powered by a Paradox motor and Trinity 2000s, and Randy did the paint job. The HPI RS4 MT has a Futaba S9402 servo, Super Rooster speed control, Hole Shot front and rear tires, Super shocks, Super one-way front diff, rear ball diff, graphite front brace and Trinity's D3 14-2 motor and 2000mAh batteries. Both cars are controlled by a Futaba 3PJ radio. See you at the track!



Mark Spohn Custom Puller

This homebuilt pulling truck is the creation of Mark Spohn of Tucson, AZ. The frame is cut from a 3-inch-square aluminum tube, while the solid $\frac{3}{8}$ -inch axle is chain-driven. The rear wheels were machined from solid aluminum, and the rear skid bars were soldered from brass pieces. It's powered by an AstroFlight pulling motor. A Parma small-block Chevy engine gives this truck its awesome scale look. Topping it all off is a Parma Chevy Puller body that Mark custom painted. Pullin' Paradise, indeed.

Joseph Juampere Kyosho Super 8 and Traxxas Nitro 4 Tec

Joseph Juampere of Orlando, FL, is the proud owner of this Traxxas Nitro 4 Tec and Kyosho Super 8 GP Landmax. The 4 Tec features fiber disc brakes, HPI header and Super Shocks, a Paris turbo ring pipe and Traxxas swaybars all topped off with a Nissan Skyline body. Joseph also installed a pull-starter in place of the electric one. The Super 8 has a 2-speed transmission, Traxxas fiber disc brakes and a full set of Red Seal bearings. When this photo was taken, the Super 8 wasn't quite finished. But you're off to a good start, Joseph!



Bob Roach Losi XX 'CR,' XX-T & HPI RS4 Pro 2

Bob Roach of Long Beach, CA, used his company's name and colors to create the paint scheme and logos on his Losi XX 'CR,' XX-T and HPI RS4 Pro 2. All the cars are equipped with Novak Cyclone ESCs, Trinity Paradox Pro Stock motors and Lunsford titanium hinge pins and turnbuckles. Bob uses an Airtronics CL3PS radio with Airtronics high-speed servos to control the vehicles. The XX-T has an Associated T3 body. Bob fabricated both front and rear body-mount adapters so either Losi or Associated bodies can be mounted using the original body-mount holes.

Jim Burnette Tamiya McLaren

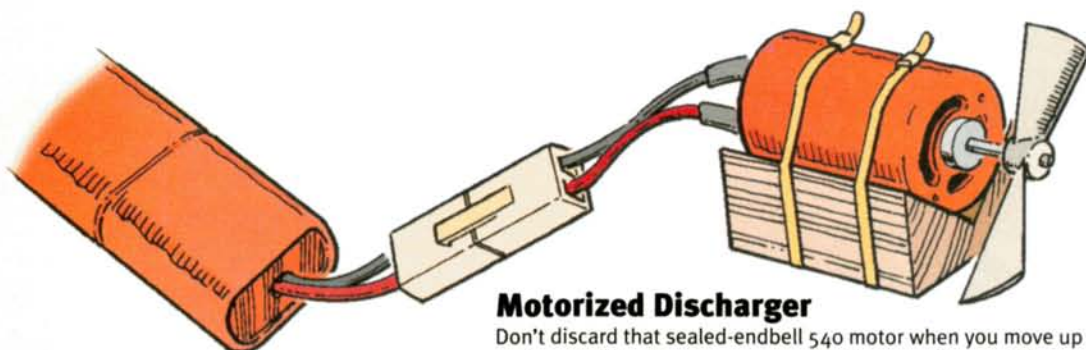
Jim Burnette of Murfreesboro, TN, put together this Tamiya McLaren Mercedes. Hop-ups include Deans 12-gauge wire and connectors, adjustable tie rods, a set of bearings, one-piece thrust ball bearings and an oil-filled damper. It's controlled via a Futaba 2PCKA Magnum Junior radio. Jim says he was into RC aircraft for many years, and this is one of his first attempts at an RC car. Looks as if he made the switch successfully.



Brian McVay Custom Dune Buggy

This original-looking vehicle belongs to Brian McVay of Lansing, MI, who created it with the help of his father and his cousin Wayne. The sand rail is constructed of aluminum tube and RC10 GT parts. The front end is from a Tamiya kit that Brian widened to match the GT's back end. Its other features include an O.S. Max .12 engine, MIP 4-N-1 clutch, MIP 360 Stinger and a Hammad Ghuman top shaft. Brian runs the car with a JR XR3FM radio in the dunes of Silver Lake, MI.

Radio Control Car Action will give a 6-month subscription (or an extension of your existing subscription) for each of your ideas used in "Pit Tips". Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one, nor can we return unused material.



Motorized Discharger

Don't discard that sealed-endbell 540 motor when you move up to a more powerful motor; use it to discharge your pack after a run. You could even use a press-on motor break-in fan to cool the pack and motor.

JOHN CORBET

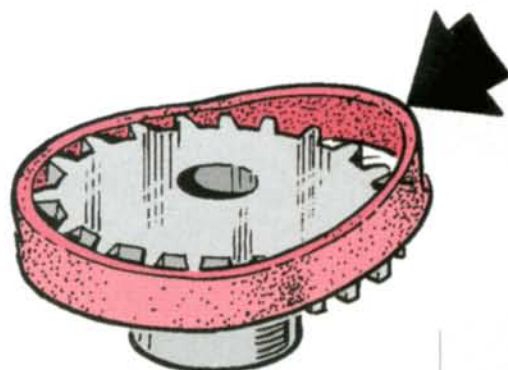
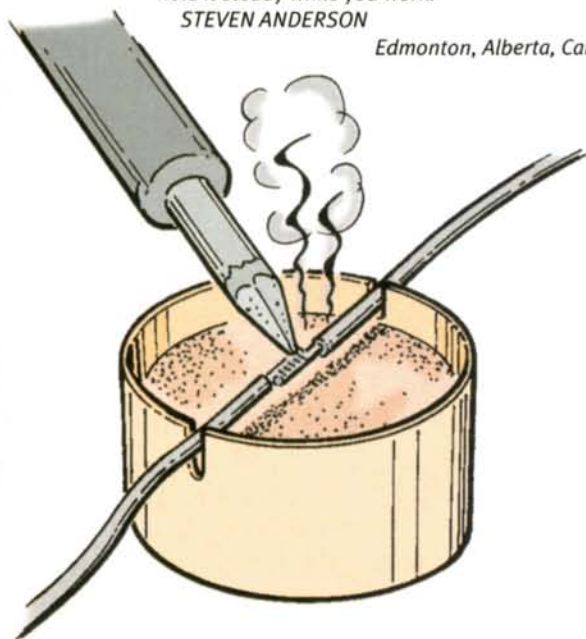
Lane Cove, New South Wales, Australia

Simple Soldering Jig

A spray-can cap makes an excellent jig for splicing wires with solder. Make a slit in each side of the cap, then slide the wires in. You'll make neater, straighter joints, and the cap will catch any solder drips. Fill the cap with sand to hold it steady while you work.

STEVEN ANDERSON

Edmonton, Alberta, Canada



Rubber-band Gear Protector

Protect your spur gears from damage in your pit box by slipping wide rubber bands over their teeth. In addition to protecting the gears, the rubber bands make a handy place to write their tooth count.

WES MILBURY

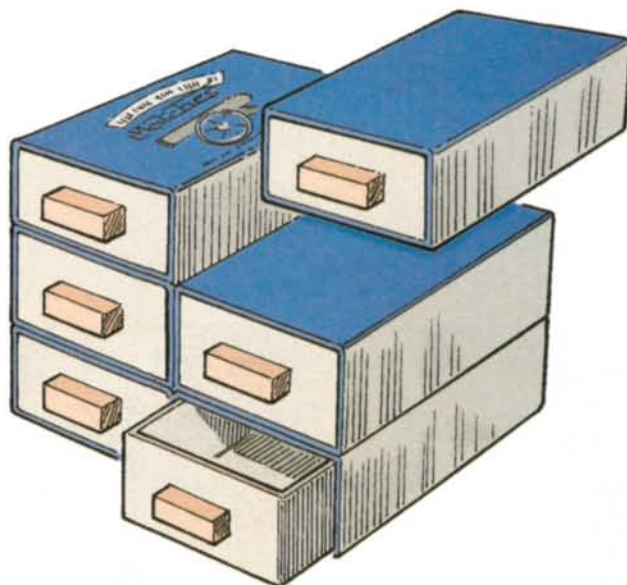
Sharon, MA

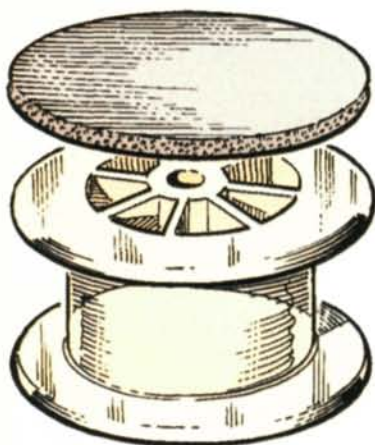
Matchbox Parts Box

Glue together four or more large kitchen matchboxes to make a surprisingly sturdy parts box with handy drawers.

ERIC NIELSEN

Midland, MI

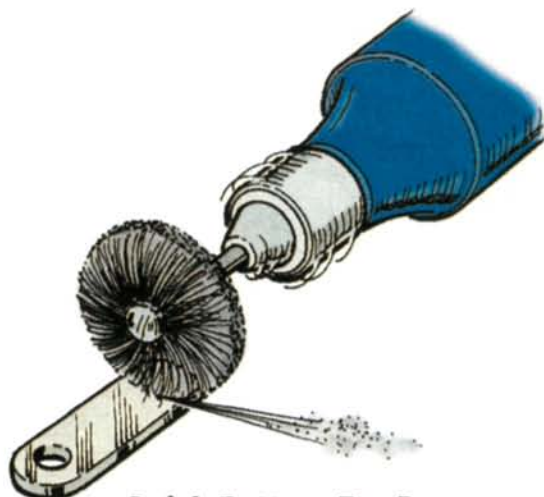




Spool Car Stand

Ask your local sporting goods dealer for empty fishing-line spools. They make excellent car stands, and since most stores simply discard them, you should be able to get one (or more!) at no charge. For a nonslip surface, cover the top of the spool with adhesive foam, and apply a few decals for that "experienced racer" look.

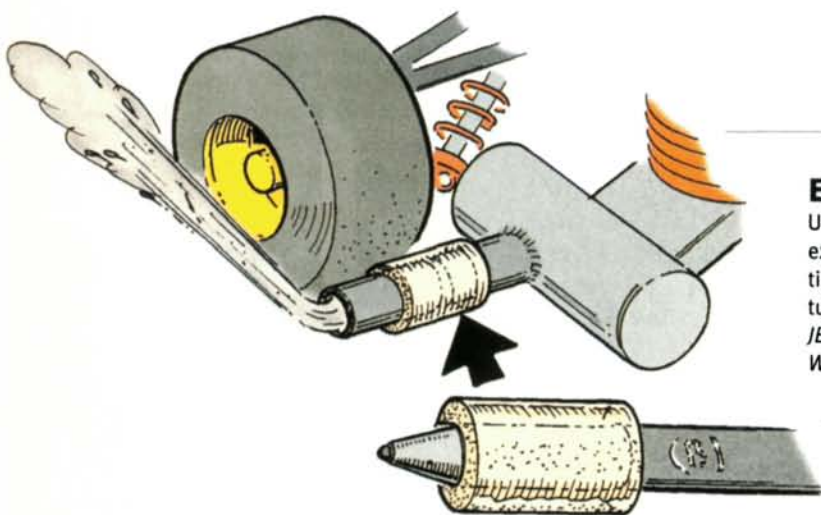
KARL A. HACKBARTH
Kenosha, WI



Quick Battery Bar Prep

Prepare new battery bars—or reclaim old bars—with a wire wheel attachment chucked into a rotary tool. The wire wheel will clean the surface and ensure a superior solder joint. (Always wear safety goggles when using a rotary tool.)

DUSTIN CRAWFORD
Sacramento, CA



Exhaust Extender

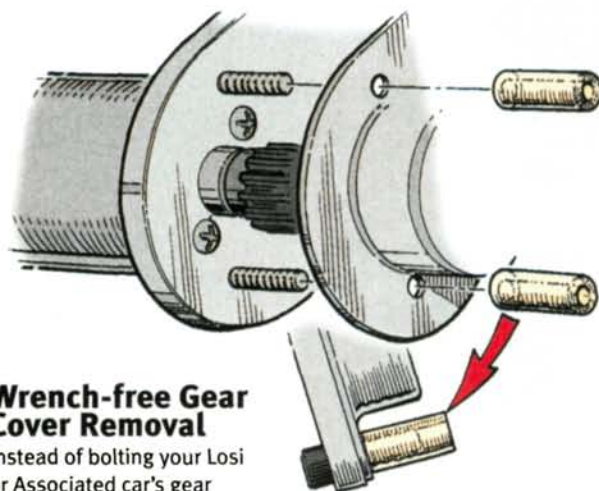
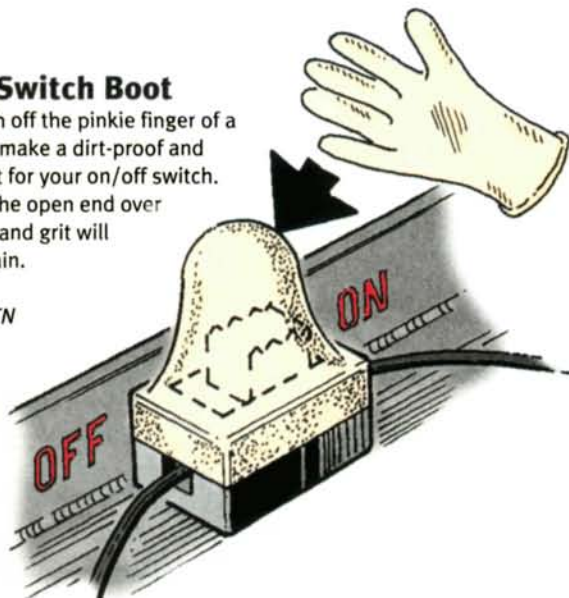
Use a section of shaft from a large-diameter disposable pen to extend your nitro car's exhaust stinger to keep residue away from tires or chassis. Use the pen tip to help force a section of fuel tubing over the pen shaft, then slide the tubing over the stinger.

JESSE WILLIAMS
Winston-Salem, NC

Fingertip Switch Boot

Clip about 1 inch off the pinkie finger of a rubber glove to make a dirt-proof and waterproof boot for your on/off switch. Simply stretch the open end over the switch. Dirt and grit will never foul it again.

JIM BURNETTE
Murfreesboro, TN



Wrench-free Gear Cover Removal

Instead of bolting your Losi or Associated car's gear cover into place, thread a pair of 4-40x $\frac{3}{8}$ screws through the motor plate from the motor side, and secure the gear cover by slipping sections of fuel tubing over the screws. Now you can remove the gear cover easily without tools and without having to remove the right rear wheel.

ROSS MEYER
Los Alamos, NM



RRP

ROBINSON RACING PRODUCTS

TROUBLESHOOTING

BY DOUG MERTES • ILLUSTRATIONS BY JIM NEWMAN

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at *Radio Control Car Action*, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to Troubleshooting, *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

BOUNCING BUGGY

I recently replaced the tires on my Traxxas TRX-1 with Team Losi Stubbies in a soft compound.

Although the car runs well, it has started to do some weird things when I put it on the track. At first, it doesn't have much rear traction, and the front end kind of bobs up and down until I've run a lap or two. After that, it's fine.

I've checked the wheels to make sure they're on right, and I even tried balancing them. The bearings are all OK, and I refilled the shocks four or five times to make sure there isn't any air in them. I don't race the car that often, so I don't want to put a lot more money into it if I don't have to.

SCOTT THORNE

Phoenix, AZ



JIM NEWMAN

My guess is that your new, soft-compound tires are collapsing a little between your sessions at the track. The newer tires have extremely flexible sidewalls that are great for traction on rough surfaces, but don't support the car well when it's just sitting on the shelf. Since you don't get to the track that often, I suspect that you bring the car home, clean it off, and put it on the shelf until you're ready to go the next time. Meanwhile, the car's tires are collapsing a little on the bottom every day. When you first put it on the track, the flat spots on the tires make it bob up and down (that must look pretty odd!), and you don't have enough rear bite because the flat spots on the rears allow the car to break loose with every revolution.

After a lap or two, however, the rubber and foam liners (you do use foam liners, don't you?) have had a chance to flex, and the tires are round again. To avoid flattening the tires, keep the car on a stand; anything will do—even a block of wood or a couple of old rims; just elevate the chassis enough to keep the tires off the shelf (and your springs won't sag, either).

Unequaled Precision

Absolute Series Spurs



Available in 48P in 80T thru 91T, this is the quietest spur you can buy! RRP 1780 - RRP 1791

B3 / T3 Lite Aluminum Outdrives



Blue anodized and 40% lighter than stock ball diff outdrives. RRP 1502

Absolute Series Pinons



Available in 48P in 16T thru 28T sizes. Super hard, lightened and cut unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! RRP 1416 - RRP 1428.

Unsurpassed Reliability

Outstanding Performance

Associated Blue Lightened Slipper Kit



The rear plate is hard anodized to reduce wear and the front plate is color treated. The front plate is designed to hold the slipper pad forcing the pad to slip on the rear plate. When pad shows sign of wear just flip it over for a new surface. Metal parts are CNC machined for a flawless fit. RRP 1515

RC10-GT Gas Spurs



Super tough and precision machined from heat-resistant plastic, these spurs mesh flawlessly with our Clutch Belts. 32P spurs in 54T thru 67T, RRP 2261 - RRP 2267, and 32P bells in 14T (New) thru 24T, RRP 2214 - RRP 2224.

www.robinsonracing.com

CRACKIN' UP

I was given a Tamiya TAO3F touring car with the NSX body for my birthday, and I really enjoy it, even though I don't race it. I have a lot of fun with my friends just messing around in the shopping-center parking lot.

Anyway, I spent a lot of time painting the body just right and positioning all the decals correctly (and that car has a lot of decals!). Now, the body is cracking and tearing over the front wheels, under the front end and at the rear. This problem is partly the result of my driving skill—or the lack of it (at least, when I started). But it also looks as if the body is just splitting along some of the corner seams. Is this body defective, or is this how body shells wear out? Is there some way to make a body last longer? They aren't cheap!

DAVE ELLIS
Lincoln, NE

You know, I've had some of the best times with my RC cars while just messing around in a shopping-center parking lot. Someday, Dave, you might win a national title, but you're unlikely ever to have more fun than you do with your friends right now. Still, it's no fun to see your car deteriorate after you've spent a lot of time making it look just right.

You can do a few things to prolong the life of a Lexan body shell, and they cost little or nothing. First, remove the body. You know those little 3/8-inch rubber cubes that came with your radio servos? Slice two in half so you have four rubber squares, each with a hole in its center. Stretch one over each body post; slide them all the way down until they're firmly against the lower body pin. Your body now has pads to protect it from the impacts and vibrations that are part of parking-lot running. Shock O-rings may also be used as body-post pads.

Before replacing the body, stick 1-inch-square pieces of masking tape over the body-post holes on the inside of the shell; use your hobby knife to cut through each piece of tape at the body holes. The tape will prevent the newly installed rubber pads from rubbing through the paint on the body.

Finally, run a bead of Shoe-Goo, Goop, or any similar silicone RTV inside the body along the straight seams where the plastic is bent at a sharp angle. Pay particular attention to the inside of the nose, since this is where many manufacturers mold in a lot of detail. The Lexan gets thin there, and the Shoe-Goo supports and strengthens it.

Do these things after the paint has had time to completely cure on a new body, and I think you'll find that it will last a long time.



Superb Quality

RC10-GT Steel Combo

Precision machined one-at-a-time from a single piece of steel and then hardened this 65T spur and 15T bell combo will last and last. The extra-hardened clutch bell fits ALL Associated and MIP shoes. RRP 2365



Associated Titanium Stealth Top Shaft

CNC Machined from a single piece of titanium, this super hard, super light top shaft will fit any Stealth transmission. No serious racer should do without this part. RRP 1512.



Intelligent Innovation

RC10-GT Hardened Steel Idler Gear

Cut from solid steel stock, this gear is lightened and then hardened for super quiet precision and extra long life. Jamin' tranny grease is included. RRP 2213



Thoughtful Design

RC10-GT Hardened Diff Gear

Hard anodized, precision machined aluminum diff gear. RRP 1513



1999 World Cup and National Champion

"I only care about performance, and that's why I run Robinson Racing gears and slipper clutches exclusively."

— Richard Saxton



ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

GET BENT

I own an older KO EX-1 AM radio—the kind with an interchangeable frequency module on the back. I only recently started to have trouble with it: last week, as I was walking off the drivers' stand and pulling down the antenna, the end of it caught on the shirt of the guy in front of me. (Don't ask me how that happened, because I still can't figure it out.) Anyway, the antenna mast was bent pretty badly in the third section from the top, and when I tried to straighten it, the top sections snapped off. Now the radio doesn't work as well; I tape the end that broke off back onto the rest of the antenna, but that fix doesn't last long. I haven't been able to find a replacement antenna, and I can't really figure out how to remove the rest of the antenna to look at its base. Is there any way to fix my broken antenna, or can you suggest a replacement mast?

PETE DAVIS
Seattle, WA

First, I would fix the original antenna mast. Use a pair of needle-nose pliers to straighten the ends of the broken pieces, and see how closely you can fit them together. You might be able to solder the pieces back together, especially if you can insert a 2-inch length of hobby-shop brass tube inside the ends for support (the brass tube's outside diameter must match the antenna tube's inner diameter).

Sandpaper both ends to remove the chrome plating, and clean everything well with rubbing alcohol to remove any oil. Make sure your soldering iron is really hot, and use rosin flux (protect your work surface with a wooden board). Give the solder at least five minutes to cool down before you handle the antenna. It should work fine, but you won't be able to slide it all the way back into the radio case.

If that's a problem, head for the hobby shop to talk about a replacement. Remove the module and take out all of the radio-case screws (note where each one comes from so you'll be able to reinstall them correctly), then carefully open the transmitter case. On that antenna, the base is held by a clip that screws into a PC board. Remove the clip's screw, and you'll be able to take out the antenna. You may have to order two or three (and send the wrong ones back) before you find one that's right, but I'm sure you'll find one with an identical base and about the same length. (A JR



BATTERED BRUSHES

The other night, something happened to me that was so unusual and unexpected that I just had to write to you about it. I occasionally race an HPI Pro 2 on an indoor carpet track, and when I do, I usually place high in the B-main or at the bottom of the A. When I go racing, I usually take two or three motors with me, and I swap them every heat so none of them wear out too soon. Well, the other night I qualified fifth in the A—pretty good for me—so I installed my fastest motor and best batteries. Imagine my surprise and disappointment when, at the tone, I nailed the throttle only to find that my car just kind of sputtered along!

I pulled it in after a lap or so because it was so slow. When I got home, I yanked the motor out and checked it. One of the brushes had literally split in half! That's why performance had been so punky.

I changed the brushes and everything seems fine now, but I'm worried that the motor is defective. Should I chuck it, or do brushes split from time to time?

GENE SIMMONS
Salinas, CA

Let's see, Gene: sedan class, indoor carpet track, split brush. My guess is that the track has hard—unpadded—corner markers made of lumber—right? When your car hits one of those markers, the wood doesn't move, and all of the force is transmitted directly into the chassis. Usually, a dogbone or suspension arm gives; sometimes, hinge pins bend or fracture. I'd be willing to bet that the last time you ran that motor, your car hit a lumber corner marker. Most cars aren't designed to take a solid side hit; in fact, such a collision often destroys a motor because the heavy armature slams against the bearing or bushing in the endbell. In that kind of crash, I've seen endbells break into several pieces. Ouch!

Try placing a small bushing over the motor shaft between the pinion and the motor can. An old pan-car front bearing or a similar 1/8-inch-i.d. spacer will do the trick. It will prevent the arm from sliding up into the can during a crash, and it should protect your brushes. You should also recut the commutator just in case it was scratched by the broken brush. ■



new for

The latest gear for the new millennium

by the staff of RC Car Action

How do they do it? Every year, at the big Chicago hobby show, we find an amazing array of incredibly exciting and innovative gear that seems to represent the pinnacle of RC cool. It's hard not to think, "That's it; everything has been invented; all that's left is to offer it in a choice of colors." And yet, no matter how dynamic and trick the items are, the many manufacturers of RC must somehow top themselves the next year. Luckily for us, they do! The crop of new products for the 2000 season is bound to get you stoked for a trip to the hobby shop. You haven't blown your holiday money yet, have you?



Traxxas T-Maxx

If you want it all, the Traxxas T-Maxx has it. It's a 1/10-scale, .15-nitro-engine-powered monster truck that can tackle any terrain. Fully independent suspension allows precise handling, yet the cleverly engineered chassis delivers the tremendous ground clearance and travel of a four-link setup. The truck is offered ready to run (you'll only need to paint the body) with a 3-channel Qualifier radio installed (the third channel operates the reverse gear mechanism). Easily one of the show's biggest highlights!

- 2-speed tranny with reverse (and the 2-speed works in both directions!).
- Full control disc brake.
- Oversize pivot-ball-type suspension with two oil-filled shocks on each arm.



- EZ Start Electric starting system.
- 125cc fuel tank for long run times.
- Rigid, blue-anodized aluminum chassis.

Part no.—4910; \$450.

MRC/Academy STR-4

OK, so there's a striking resemblance to a certain "brand A" car; can we move on? The STR-4 could be a real contender on the entry-level scene; it looks plenty rugged, there are no belts to stretch or catch pebbles in, and the kit includes a great-looking body with a full set of race-livery decals. Want more? The wiper-type mechanical speed control is waaay smoother than a 3-step job, and the chassis is 90 percent factory-built. Look for a "Track Test" on this car very soon.

- Two body styles available: Alpha (looks like an Alfa Romeo), and Beta (Dodge Stratus-looking)
- One-piece molded chassis.
- Oil-filled coil-over shocks.

Part no.—1578; \$119.



Trinity/Picco Monster Horsepower Engines

Trinity has joined forces with legendary Italian engine builder Picco Micromotori to create the first gas powerplants to carry the Monster Horsepower badge. The new line will include .12 and .15 engines that will be available with and without a pull-start.

- New round-port design for more efficient exhaust flow and increased horsepower; standard rectangular-port engines also available.
- Rotary carburetor (slide carb optional).
- Full line of accessories, manifolds, pipes and plugs to come!

Various part numbers.

.12 (with pull-start)—\$249.

.12 (without pull-start)—\$199.

.15 (with pull-start)—\$259.

.15 (without pull-start)—\$219.



HPI Racing Super Nitro RS4 Toyota GT-1

The popular super-size RS4 gets its sleekest body ever with HPI's new GT-1 shell. Awesome.

Part no.—484; \$499.

2000



Futaba 3PJS transmitter

The new 3PJS adds these innovative new features to the original 3PJ:

- Third-channel digital trim knob on steering-wheel hub.
- PCM mode response time is twice as fast as the 3PJ's.
- Optional memory cards for infinite model memory.
- Right- or left-handed operation.
- Adjustable throttle and steering-spring tension

\$310



GS Racing 1/8-scale On-Road Prototype

GS actually built this car from the ground up; it isn't an outsourced car with a GS label stuck on it. Check out the specs: laydown, inboard front shocks, 2-speed tranny, active rear body mount and front one-way setup—impressive stuff. We'll keep you posted. Call for part number and price.



Team Associated RC10GT Ready To Run

It's Associated's boldest move since the TC3! The ready-to-run version of the number-one gas racing truck can't help but be a hit, but there's more to this story than factory assembly and a radio. The RTR GT packs in plenty of new features, some of which will even be included with the Team kits. All this is in the box:

- New, stronger, blue-anodized aluminum chassis.
- Team Associated .15 pull-start engine.
- Most of the parts are the same as those in current RC10GT kits.
- Complete factory assembly with installed radio gear.

Part no.—7090; \$479.95.



HPI Racing Nitro RS4 MT

We gave the latest HPI truck a "Sneak Peek" in the December issue; now we can show you the chassis! Here's what you'll find under an aggressively styled MT-1 body:

- Nitro Star 15FE pull-start engine.
- Full-time, shaft-driven 4WD—no belts to foul.
- Countersunk, purple-anodized 2.5mm aluminum chassis with swing-away upper deck.
- Pro-Line Dirt Hawg tires on new-style chrome wheels.

Call for part number and price.

Trinity P2K Rebuildable Stock Motor

Lots of features to list here! The flat can design and rebuildable concept return, but there's a whole lotta "new" happening in there

- Asymmetrical can venting for increased timing effect and higher rpm.
- New can design is thicker for stronger magnetic field.
- 100-percent-copper hoods and heat sinks for maximum efficiency.
- Includes three factory-installed, surface-mount capacitors—no soldering required.
- Tamper-proof "flat" can allows rebuilding, eliminates cheating.

P2K—RC2116; \$39.99.
P2K Pro—RC2117; \$39.99.





Kyosho

Ultima ST Type R

Kyosho is ready to re-enter the 1/10-scale off-road competition scene with its racing truck chassis, the Ultima ST. Electric- (EP) and nitro-powered (GP) versions will be offered. The legendary Ultima name returns to the dirt; it's about time!

- Compact TR-Pro racing transmission with ball differential (equipped with 12, industry-standard 3/32 diff balls) and slipper clutch.
 - Complete 19-piece bearing set.
 - Large-capacity Pro Twin Capped oil shocks with selectable pressure settings.
 - Duralumin and lightweight, reinforced plastic chassis.
- GP Ultima ST Type R—KYOC0520; **\$349.99**.
EP Ultima ST Type R—KYOC0220; **\$249.99**.

Peak Performance Spitfire Rebuildable Stock

This TOP-based stock motor is completely rebuildable and offered in ROAR- and NORRCA-legal cans and a blueprinted version. These motors feature:

- Tagged 27-turn armature for easy visual inspection.
- Surface-mounted capacitors—included and installed.
- High-power G9 magnets and low-friction bushings.
- Dual brush dampers and heat sinks.

Blueprinted Spitfire—PEK8200; **\$40**.
Standard Spitfire—PEK8205; **\$40**.



HPI Racing Nitro RS4 2 Saleen Mustang

Mustang lovers, your ride is here. All the standard Nitro 2 features are in place: Super Compound tires, aluminum shocks, swing-away upper deck, bearings, stiffer suspension parts and more.

Part no.—414; **\$439**.



Pro-Line X-Factor buggy body for Losi Triple-X

Give your Triple-X a lower, sleeker look with the X-Factor shell. A wing, decals and window masks are included.

Part no.—3094; **\$15.95**.



NovaRossi Rex

If you're looking to drop some serious horsepower into your car or buggy, check out the selection of .21 engines from Rex. These high-quality engines feature slide carburetors and are finished with a black case.

- 3-port, 5-port off-road versions.
- 7-port, on-road turbo model for maximum power.

3-port (off-road)—BR21BK.

5-port (off-road)—BR21SBK.

7-port (on-road)—PR21SP.

Call for more information.



GS Racing Turbo Box

There's always room on the nitro side of RC for a versatile starter box, and GS has one. The Turbo Box can be configured to suit just about any car thanks to its multi-position locating posts and variable motor position.

- Belt drive with adjustable tensioner.
- Full ball bearings.
- Dual motor power.
- Accepts gel-cell or dual stick packs.

Call for part number and price.



Competition Electronics Turbo 35 BL

The full-featured 35 model now includes a backlit display for easier viewing of its many functions, such as:

- Selectable TurboFlex charging.
- Variable discharge mode.
- Displays actual internal resistance of cells.
- Computer serial port interface.
- Too many other features to list!

Part no.—CEI-3750; **\$589.95**.

Hitec Spectra 75 Synthesizer Module

Managing those pesky radio crystals is now 50 percent easier thanks to Hitec. The new Spectra 75 module for the Lynx 3D FM radio doesn't use a crystal; instead, it synthesizes the frequency! Two numbered dials are easily set to match your receiver frequency; it's that simple. Once the module has been installed, the dials are protected from accidental setting changes.

Part no.—24475; **\$110**.



LRP Phazer Receiver

Ready at last, the Phazer is LRP's first receiver, and it promises to be a hot upgrade (and if looks count, it will rock). The Phazer accepts your original crystals, but LRP does offer RX crystals as well.

- Special interference-suppression circuit.
- Very small and lightweight.
- Top-exit antenna wire for greater glitch-resistance and easier mounting.
- "Super-shielded" case with non-flaking, blue chrome finish.

Phazer 27MHz—8407.

Phazer 40MHz—8406.

Phazer 75MHz—8470.

Call for prices.

CEN GX-1R Prototype

There doesn't seem to be much GX1 left in the GX1R! The old single-belt/dual-gearbox setup has been replaced by dual belts. CEN claims the production racer will probably look quite a bit different from this mock-up, but the basic features should stay in place; here's what to expect:

- Ball diffs and one-way front pulley.
- Titanium turnbuckles.
- Full bearings.
- Carbon-fiber double-deck chassis and shock towers.

Call for part number and price.





Team Associated Factory Team RC10GT

You want the best; you got the best! With this kit, Associated pulled out all the stops and dumped all the Factory Team goodies into the box. The most notable addition is the improved chassis, which has also found a home on the "RTR" version of the GT. Here's what you'll get with the Factory Team truck:

- New, stiffer, blue-anodized chassis.
- MIP CVDs.
- Blue titanium turnbuckles.
- Graphite shock towers.
- Factory blue header and pipe and more.

Factory Team GT (non-pull start)—7060.
Factory Team GT (pull-start)—7061.
Call for prices.



Protoform Porsche 911 GT-1, 2000 Monte Carlo SS

Great-looking bodies from Protoform; is anyone surprised? The GT-1 features injection-molded wing supports for a look that says "scale," not "slot car," and it's designed to fit direct-drive tourers such as the Associated RC10L Touring. The Monte Carlo is an oval natural and includes an add-on spoiler. Both shells include hardware, detailed decal sheet, and window masks.

Call for information.



Pro-Line Agitator wheels for Traxxas

Custom-fit for Traxxas trucks, the new Agitator wheels will personalize your ride as they add distinctive looks and strength.

Call for part nos.; **\$9.95** (chrome), **\$6.50** (white).



Bolink Super Stopwatch

Don't settle for "feel" when gauging your car's performance: clock it! Bolink has the tool you need to measure your speed—also good for confirming complaints that your sister takes forever in the bathroom.

- 200-lap memory.
 - Backlit display.
 - Dual countdown timers.
- Part no.—SC-808; **\$57.95**.



LRP IPC V7.1

The race-proven IPC V6 has been revamped as the V7.1. The new ESC helped Mark Pavidis TQ the 2WD buggy class at the 1999 IFMAR Off-Road Worlds, and equipped the ROAR Touring Car Nats winner. Operates on 4 to 6 cells, so it's ready for 1/12 scale. LRP claims the new 7.1 features and software deliver:

- Increased run time.
- Improved motor power.
- Stronger, more consistent braking.

Part no.—8069.
Call for price.



Airtronics 94357 and 94358 Competition Servos

The latest Airtronics boxes are fast, strong and sure to find homes in 1/8-scale machines and other hard-working applications. The 94357 yanks 125 oz.-in. with a transit time of just 0.07 second, and the 94358 pulls a muscular 200 oz.-in. with a very quick 0.10-second transit time.

Servo 94357—VR-ATX.
Servo 94358—VB-ATX.
Call for prices.



Serpent Nova Mega Engines

Available in three displacements, the Nova Mega engines are designed for total performance. All feature slide-valve carbs, precise piston and sleeve tolerances, rear-exhaust design and oversize heat-sink heads.

Part nos.—SX12, SX15, SX21; **\$225 to \$525**.

DuraTrax Maximum MT

Another cool RTR from DuraTrax? Don't these guys sleep? The latest "Maximum" machine combines a larger TORQ 16 engine to spin a set of monster-size tires, and a fully detailed body for the full car-crusher effect. No shortage of chrome on this bad boy!

- Available RTR with installed radio, or factory-built without radio gear.
- Aluminum "Rigi-Frame" chassis is heavy-duty at 3mm thick.
- 6-month replacement guarantee on all "Stress-Tech" molded parts.
- Ball-bearing-equipped transmission.
- Aluminum, threaded-body shocks.

DuraTrax Maximum MT RTR—DTXC0064; **\$469**.

DuraTrax Maximum MT RTR—DTXD64**; **\$369**.





HPI 2WD Nitro Truck Prototype

HPI plans to enter the 2WD truck arena and showed off this un-named, prototype truck. Clean construction makes it easy to think the truck is just about ready for production, but it really is "rough." According to HPI, the very unique enclosed chassis will make it to production but will be purple-anodized. Other changes reflect HPI's vision of the truck as an enthusiast's car, not as a hardcore racer (although it will certainly be upgradable for competition). The following features should be part of the final package:

- Full bearing set.
- Three-gear transmission with slipper clutch and disc brake.
- Gear differential.
- Nitro Star 15FE engine.
- Composite tuned pipe.
- Molded upper deck.

Call for more information.



Orion Prepainted Bodies

This is an easy one: Orion offers the entire HPI body line with custom graphics just like this, courtesy of Thunder Designs! Other styles available, too; all include HPI factory decal sheets. Various part numbers; \$60.



JP Racing Pro 99 Engines

JP Racing engines are known for their high-quality materials and precise machining. These fast, reliable engines are used by Team Mugen.

- 7-port design.
- On-road version includes turbo plug and has 9mm carburetor.
- '99/2000 world champ.

Pro 99 (off-road)—SP001; \$699.

Pro 99 (on-road)—SP0010; \$699.



HPI Racing 200mm Toyota Supra Body

You'll have to check the used-car lots if you want a full-scale Supra; 1998 was the final year for Toyota's last true sports car. Want an RC version? That's a lot easier (cheaper, too) now that HPI offers a Supra shell to fit your 200mm nitro sedan (or a wide electric).

- Features racing wing and spoiler.
- Easy to finish; includes window masks, overspray film, wheel cutouts and mounting dimples.
- Denso team decals included for a factory look with just a single-color paint job.

Part no.—7424; \$26.

Multiplex Profi-Car 403 & 707 Transmitter

The Profi-Car 403 is for standard electric- and gas-powered RC cars, while the 707 is designed for large scale cars using twin steering and brake servos. According to Multiplex, the IPD transmitting mode is the next generation of PCM and features advanced error detection with all of the benefits of PCM.

- Standard IPD 4-channel receiver.
- Up to 7 channels.
- 8-point throttle/brake curve/exponential.
- Dual rate, exponential and transit speed adjustments.
- Four digital trims.
- Three lap timers and a lap counter with 50-lap memory.

Call for information.



Hitec Lynx Sport

The inexpensive, simple Lynx Sport is engineered with beginners in mind. Intuitive, no-nonsense trim controls and servo-reversing make it easy to dial in. Hitec plans a few package options with servo and ESC combinations.

- Removable antenna.
- LED battery meter.
- Ni-Cd charging port (charger and batteries optional).

Various part numbers depending on equipment; estimated price for Lynx Sport with two HS-303 servos—\$50.



Thunder Tiger TS-4 Nitro touring car

The TS4 is Thunder Tiger's latest nitro touring car designed by Franco Sabatini. The TS-4 has a long list of standard features that should make it competitive with the current crop of nitro cars.

- Double-deck chassis with a 2.5mm lower plate.
- Full ball bearings.
- Thunder Tiger Pro 12 BZ-X pull-start engine.
- High-precision, low-maintenance gear differentials.
- Turnbuckle linkage rods.
- Ball-type front steering pivots for quick width and camber adjustments.
- Shims are used to set front caster angle.
- Aluminum upper deck.
- Tuned pipe and header are included.

Part no.—TTR6136-A; call for price.

DuraTrax Nitro Quake Monster Truck



Looks as if DuraTrax was just getting warmed up with the Axis buggy! The Quake takes the features of that 1/8-scale machine and adds monster appeal with a highly detailed truck body and a set of colossal tires meant for mayhem. Like the Axis, the Quake is available completely ready to run with installed radio gear, or factory-built without radio.

- "Big block" TORQ 21 engine with pull-starter.
- "Ultra Frame" chassis, shock towers and full-length upper plate are constructed of 3mm, blue-anodized, 6061 T6 aluminum.
- Features a full ball-bearing set, dual disc brakes with adjustable front/rear bias, and universal front axles.
- The body is factory-painted and trimmed and includes chrome wheels, a roll bar, and mirrors for scale looks.

Nitro Quake (RTR with radio)—DTXC73**; \$799.

Nitro Quake prebuilt (truck only)—DTX0073; \$599.

NEW FOR 2000

Orion Chrome Touring Modified, Stock RS, Stock motors

Orion's new Chrome line looks hot, but these motors are about much more than looking good. The Touring Modified is hand-pattern wound and features brushes and springs chosen just for touring (Chrome Modified is also available for other applications). The Stock RS is the rebuildable model, and the Stock is a sealed-endbell motor. All Chrome motors feature:

- Surface-mounted capacitors.
- Pattern-wound armatures.
- Brush dampers built into hoods.
- Colored heat sinks indicate the polarity of the endbell.
- High-flow can design for enhanced cooling.

Various part numbers.

Chrome Modified—\$95.

Stock RS, Stock—\$39.99.



Niftech Super Precision Race Hubs

Niftech has built a reputation on uncompromising quality and an unwavering devotion to total performance, and it shows in the new Precision Hubs.

- Left side $\frac{1}{10}$ hub includes a spacer that allows it to be used in all $\frac{1}{10}$ cars with stock or offset axle positions.
- Non-marring ground setscrew and Bearing Saver washers are included with left hubs.
- Diff hubs are pre-pinned with an indestructible steel roll pin.
- Wheel-mounting screws are included with all hubs.

Diff hub for Associated 12L3—1011;

\$29.95.

Left side hub for all $\frac{1}{10}$ scale—1010;

\$29.95.

Left side hub for Associated RC12L3—1012; \$29.95.



Neo T-21 NS

The sport electric version of Neo's T-21 chassis uses the popular mid-motor configuration and has a molded, plate-style chassis. Includes:

- Front universals.
- Lightweight Delrin differentials.
- Translucent blue shocks.
- Molded chassis accepts stick and saddle packs.

Call for more information.

T-21 Nitro Sport

The inexpensive Nitro Sport is better equipped than many "sport" cars.

Features include:

- Front universals.
- Full bearing set.
- Side belt tensioner.
- .12 pull-start engine.
- Honda Accord or Alfa Romeo-style shell.

Call for more information.

Keyence A-01B Infinity ESC

Keyence's new top-of-the-line ESC is the A01-B Infinity; the "B" is for "brake rate"—Keyence's term for the unit's easy-to-adjust minimum brake setting system. Like the A-01 Pro that came before it, the Infinity is extraordinarily small and equipped with an adjustable current limiter.

- Dash Power mode disables current limiter for full-power start, then engages current limiter once brake has been applied.
- Unique, plastic armor case allows easy removal of ESC from vehicle.
- Adhesive heat sink, decals and capacitors included.
- Externally attached wires are easily replaced.

Part no. A01B; call for price.



Sticky Stuff

*Now Available, The Same
Glue Brian Uses To Put
His Multi-Stage Inserts
Together And To Glue His
Tires To The Rim!*



TK3701 Bead Loc Thick
Slow Drying, \$7.50

TK3700 Bead Loc Thin
Fast Drying, \$7.50

TK3504 The Bomb
Insert Glue, \$7.50

www.teamtrinity.com

TEAM Kinwald TRINITY



Peak Performance PowerFlo RC2400 cells

Sanyo has increased the capacity over that of the 2000 cells by 20 percent without sacrificing output voltage. Peak's updated PowerFlo voltage-enhancing process adds extra zap, and the cells are offered in various configurations to suit enthusiasts of all skill levels and budgets.

Various part numbers; \$75 to \$120.

Novak N-Power

Novak's new power supply is able to power two chargers at the same time.



Naturally, the compact design is compatible with Novak's Millennium and Rhino as well as with other DC chargers.

- Powers two chargers simultaneously.
- On/off switch.
- Internal cooling fan.
- Input—110 volts AC (detachable AC power cord); output—14 volts DC at 10 amps.

- Anodized purple case.

Part no. 4900; call for price.

OFNA Racing Monster Pirate

Big and bad, OFNA's new monster truck is a .21-powered, 1/8-scale terrain stomper. The new truck has extra-large tires—the biggest we've ever seen, and definitely much bigger than the OFNA Monster Blazer's. To compensate for the massive tires, a large spur gear lowers the transmission ratio.

- Thick, blue-anodized chassis with upper braces.
- Large-capacity fuel tank.
- Enclosed receiver box.



- High-volume, blue-aluminum shocks.

Call for more information.



Team Losi Double-X4 Worlds Edition

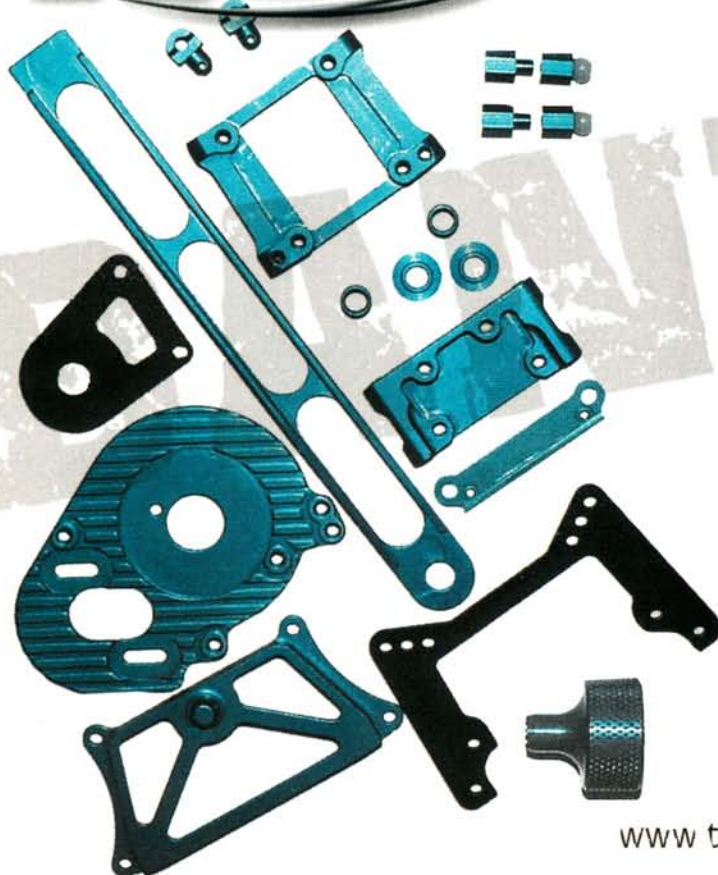
Much like Losi's popular Graphite Plus kits, this Jukka Steenari replica includes all of Losi's graphite parts, including the cutout chassis. Other Worlds touches include:

- Threaded, hard-anodized shocks with titanium-nitride shafts.
- Lowered/offset motor plate.
- Titanium turnbuckles.
- Extra-heavy-duty belts and lightweight outdrives.
- Dish rims.
- Hot-weather body and more.

Part no. A-00411; \$495.



a la TEAM Kinwald



TK5008	Blue Aluminum Battery Strap	\$19.99
TK5009	Blue Aluminum Lower Front Bulkhead	\$29.99
TK5010	Blue Aluminum Upper Servo Brace	\$29.99
TK5011	Blue Aluminum Rear Body Mounts, 1 Pair	\$17.99
TK5012	Blue Metal Flake Graphite Front Shock Tower	\$15.99
TK5013	Black Kydex Transponder Mount	\$2.99
TK5014	Blue Aluminum Shock Bushings, Front And Rear	\$7.99
TK5015	Blue Aluminum 0 Degree Rear Pivot Blocks	\$29.99
TK5016	Blue Aluminum 2 Degree Rear Pivot Blocks	\$29.99
TK5017	Blue Aluminum Servo Mounts, 1 Pair	\$19.99
TK5018	Blue Front Brace With Sway Bar Mount	\$11.99
Front suspension brace with slot that fits XX front sway bar wire.		
TK5019	Blue Adjustable Rear Sway Bar Mounts	\$14.99
Uses Losi sway bar wires. Adjustable to easily change wire length to fine tune your handling without changing the wire diameter.		
TK5020	One Piece Rear Wing Clip, 3 Pieces	\$4.99
Special long blue clip that goes through both the rear wing mounting posts.		
TK5022	Blue Aluminum Motor Plate, Same As In Kit	\$10.99
TK5023	Blue Aluminum Heatsink Motor Plate	\$25.99
TK5024	Blue Aluminum Screw Kit	\$18.99
TK5025	Blue Aluminum Axle Bearing Spacers, 4 Pieces	\$9.99
TK5026	Blue Aluminum Rear Arm Brace	\$8.99
TK5027	Blue Aluminum Slipper/Shock Wrench	\$21.99
Allows slipper adjustments without removing the rear tire. Tightens shock mounting nuts without scratching shock body.		
TK5028	Blue Titanium Tie Rod Set	\$26.99

www.teamtrinity.com

TRINITY



Traxxas ProTrax Rustler and Stampede RTR

Nitro-powered RTRs have been making news lately, but if it's truly hassle-free RC you're after, electrics are the way to go! The new ProTrax features Traxxas' hugely popular Rustler stadium truck and Stampede 2WD monster truck. They're full of features as kits but even better equipped as RTRs.

Distributed exclusively by Horizon Hobby.

- Factory-painted multicolored bodies.
- Various radio frequencies offered, with a different body-color scheme for each channel. When your buddy buys a ProTrax, you won't be racing with look-alike trucks.
- Chrome wheels and Traxxas Qualifier radio with XL-1 ESC included.
- Full ball bearings in transmission.
- Excellent factory assembly. Just slip in a stick pack and transmitter batteries!

ProTrax Stampede—PRX3606, ProTrax Rustler—PRX3706; **\$229.95, \$219.95.**



GM Racing V-4, V-8, V-12 Worlds Edition ESCs

GM now has three speed controls in its "V" line. The low-price, competition V-4 borrows some of its technology from the V-12. It's available in forward only and reversing models. The V-8 features the same rugged features as the V-12 but has a slightly less expensive transistor to keep its price within the reach of racers on a budget. The V-8 and V-12 Worlds Edition have compact plugs attached to the circuit board, so solderless connections are possible.

- Easy, one-step setup.
 - "On" resistance: 0.0004 ohm (V-12), 0.00055 ohm (V-8), .0025 ohm (V-4).
 - Operating frequency: 2/4KHz
 - Constant current capacity: 156 amps.
 - Pulse current: 700 amps.
- V-12 Worlds Edition—HE2216WE
V-8—HE2218.
V-4—HE2220.
Call for prices.



DuraTrax RealRace RC car simulator

Forget goofy RC video games; this is RC simulation—an authentic driving experience from the comfort of your computer desk. According to DuraTrax, great pains were taken to perfect complex software that allows RealRace to accurately mimic real RC car physics. Whether you use it as a training aid, as a setup tester, or just for fun, the RealRace software looks like a great way to keep your RC juices flowing when you can't hit the track.

- Includes Futaba "transmitter"—looks; feels and operates like a real pistol-grip radio.
- Over 120 adjustable setup parameters, including motor or engine choice, tire selection, shock settings and more.
- Multi-point perspective; drive from a virtual drivers' stand, a chase car, or anywhere on the track.
- Drive against the clock, or compete against other RealRace drivers via modem connection with other computers.

Part no.—DTX24000; **\$199.**

Trinity D4 Copper Head modified

Here's the latest technology in modified motors, designed to provide the longest-lasting and most versatile motor ever available. The Copper Head will be available in many of the wind configurations offered with current Trinity mods, plus a few new ones to exploit the new armature designs.

- Copper-plated can with heat-dissipating black finish.
- Matched, replaceable magnets.
- Solid copper brush-hood heat sinks and brush hoods for better conductivity.
- New endbell design features three solderless micro-capacitors.
- Optional, solderless Schottky diode available.
- Two armatures available—one for high torque, the other for high rpm.

Various part numbers; **\$95.**



Tamiya 1/25 Panther Tank

Military RC scale isn't done by any other company with nearly as much attention to detail and quality of construction. The latest T-tank is smaller than previous models but no less detailed or innovative.

- New DMD control unit for fine track control.
- Dual 280 motor power.
- Includes driver and three other figures.

Part no.—56601; **\$312.**



Crono Rally Game Expert

The "rally game" concept looks as simple as street tires on an 1/8-scale off-road chassis, but there's more to it. The Crono Rally Game car is a dedicated road machine with specially configured chassis, swaybars and suspension setup tailored for pavement (other features similar to the Crono Expert). If the popularity of the format in Europe is any indication, rally game could be the wave of the future. Call for information.



Ricambi .21 Motorcycle

We flipped out when we saw this little bike tucked away in the Ricambi booth. In addition to .21 power (!), the machine has mono-shock front and rear suspension, a miniature Vance & Hines look-alike pipe and fat, weighted, slick tires. It's wang-dang expensive right now, but look for the price to come down as handmade parts are replaced by production pieces. (Jackie Chan not included!)

- Enclosed shaft-drive system.
- Single-sided front and rear swing arms.
- Weighted wheels for gyro stability.
- Ricambi says it can handle jumps and do wheelies!

Call for more information; **\$950.**



LRP NiMH-compatible Micro, Jet and Quadra "Plus" chargers

The world's tiniest charger now packs a few extra features into its minuscule case, but the biggest news is full peak-charge capability with NiMH 3000 packs. Likewise, the Quadra and Jet (which we hope will be available in the States this year!) will be NiMH-ready.

- Digital charge mode "for increased power."
- New microchip software for accurate peak charging of NiMH and Ni-Cd batteries at up to 4 amps (Micro) or 5.5 amps (Jet, Quadra only).
- AC/DC operation (Jet, Quadra only).
- Short-circuit, overload and disconnect protection.

Micro Charger Plus—41010.

Jet Plus—41170.

Quadra Plus—41290.

Call for prices.



Neo T-21N Nitro Pro Racer

The best Nitro touring offering from Neo includes swaybars, a Centax-type clutch, a foam bumper and a bunch of other must-have competition features, including:

- Graphite upper deck.
- 2-speed transmission.
- Chrome header pipe.
- Threaded-aluminum shocks.
- Centax-type clutch.
- Front and rear swaybars.
- Pre-cut foam bumper.
- Triple-belt 4WD system.
- Universal drive axles.

Call for more information.



OFNA Racing Ready-to-Run Ultra GT LX, Z-10, Pirate 10 truck

RTR vehicles dominated the show, and OFNA was on the bandwagon with three Airtronics Rival-equipped machines. The Pirate 10 Truck is built on the same shaft-driven 4WD system as the Pirate 10 buggies and includes a full bearing set and plenty of anodized-aluminum features. The Ultra GT-LX features its usual equipment, including blue-anodized chassis with built-in kick-up, large-capacity aluminum shocks and an enclosed radio box. Likewise, OFNA has not omitted any of the standard Nitro Z-10 features from the RTR version; it includes 3-belt 4WD, an aluminum double-deck chassis and ball differentials. All OFNA RTRs include a glow-starter and fuel-filler neck (fits soft-drink bottles). Call for information.



Team Losi Triple-X lightweight motor plate

Add a little color and remove a little weight from your Losi Triple-X with these machined motor plates. Available in purple, black, blue and red.

Part no. A-9980 (color); \$10.

KO Propo High-power FET servos

These digital servos are specially designed for the rigors of highly competitive racing. They process their instructions digitally, instead of using the older analog method.

This results in quicker response times, more accurate operation and much more precise neutral points. Three 6V servos for electric- and gas-car applications are available; the PDS-947FET operates on 7.2 volts and is designed for electric racing. All servos feature metal gears with an aluminum output spline, double ball bearings and coreless motors with gold-plated connectors.

PDS-2123FET—9.5kg-cm torque, 0.06-second transit time.
PDS-2143FET—8kg-cm, 0.08 second.
PDS-2144FET—13kg-cm, 0.13 second.
PDS-947FET—2.7kg-cm, 0.09 second.

Call for information.



Ellegi Technics mounted sedan tires

Available in 22-, 24- and 26mm widths, Ellegi's new skins are available separately or already mounted with molded inserts. Firm and soft compounds are available—slick and treaded.

Part nos.—EV1A to EVX33BE; \$11.95 to \$22.95.



Mugen Seiki On-road and off-road Pro Starter Box

Mugen doesn't fool around with universal designs; instead, it offers dedicated starter boxes for on- and off-road machines. Each box includes mounting brackets for several cars to ensure precise starter wheel/flywheel alignment. Requires two 7.2V battery packs.

- ★ Purple-anodized aluminum case.
- ★ Ball-bearing starting wheel.
- ★ Dual 540 motors.
- ★ Glow-starter storage hole in handle.
- ★ Replacement parts available.

Part no.—B0230 (off-road), B0220 (on-road); \$119.99.



Corally C4 Touring European Championship Edition

Corally's top-line tourer is now updated with a revised chassis that places the left side of the saddle pack up front next to the steering servo. The improved design was good enough to win the European championships in the hands of Andy Griffiths, and second place also went to a C4—driven by Finland's Sake Ahoniemi.

- Adjustable shock pistons alter damping by simply turning the spring perches.
- New, externally adjustable differentials—no disassembly.
- 1/10-scale nitro on-road-style pivot-ball suspension.
- More vertical shock mounting for enhanced bumpy-track handling.

Part no. 00151; call for price.

Holeshot Racing Products 21st Century engine dyno

Electric motor dynos have been around for years, but this is the first engine dyno we've seen that's anywhere near affordable. Expect the production model to be more polished than this proto!

- Accepts engines of .049 to .9 displacement.
 - Tests acceleration from stop to full throttle; can also test loads exerted under racing conditions.
 - Optional slave motors available to test various engine types.
- Part no.—8000; \$399.



Hudy Precision Tools automatic comm lathe

Ready for robo-style comm truing? Hudy's newest lathe features a motorized cutting head for super-smooth cuts you just can't get with a handwheel.

- Automatic shut-off after each pass.
 - Ball-bearing or steel V-groove guides.
- Call for part number and price.



Thunder Tiger RTR Rally Game

The Thunder Tiger 2WD Rally Game cars are based on technology developed for previous 1/8-off-road cars. The Rally Game machines are becoming a more popular alternative to 1/8 on-road cars because they can handle a greater variety of terrain.

- Completely built, including with painted body and installed radio gear.
- Includes a Thunder Tiger Pro 21 BX-RS .21 pull-start engine.
- High-grip-rubber racing tires.
- Aluminum chassis and radio tray.
- Sealed receiver box.
- Foam bumper.
- Turnbuckle linkage.
- Molded chassis side guards.
- May be upgraded to 4WD.

Call for more information.



Pro-Line 24mm capped sedan tire

ROAR still hasn't legalized the Pro-Line caps, but that isn't stopping scads of club racers from using the long-wearing rubber. Now Pro-Line offers the narrower caps: 24mm. For you carpet racers, Pro-Line also offers its foam line in the 24mm width.

Cap tire, green compound—2994;

\$34.50.

Cap tire, yellow compound—2993;

\$34.50.



No Mercy microtip hex-driver set

With a fitted hard case and simple color-coding for size, these No Mercy hex drivers are sure to make wrenching easier; strong vanadium steel construction with rotating finger cup and "grippy" black tip surface. Includes 0.05-, 1/16- and 3/32-inch, and 1.5-, 2- and 2.5mm drivers.

Part no.—NMA 0168; \$21.



Trinity TC3 nitro conversion

As soon as the Team Associated TC3 touring car hit the hobby-shop shelves, Trinity introduced a nitro conversion that's sure to be popular with nitro-touring-car fans. The TC3 conversion replaces the electric powerplant with any popular .12 or .15 side-exhaust engine. It uses many Team components to complete the conversion, and they're readily available at most hobby shops. The TC3 conversion includes a precision-machined aluminum chassis plate and engine mounts.

- Uses components readily available at most hobby shops.
- Machined-aluminum chassis plate and engine mounts.
- Blue anodized.
- Fits standard and pull-start .12 and .15 engines.

Call for more information.



MRC/Academy SP3 Matiz, Lance

Your mom would probably call this thing "cute," but it's very cool. The rugged little SP3 chassis gets a new look with the bubble-like Matiz shell, and with 380 power you can expect nearly eternal run time. The car is also downright cheap (the good cheap); for less than the price of a decent pair of sneakers, you can take home a Matiz. All the usual SP3 features are in place, plus some new goodies. Also pictured: the Lance SP3, which features a new, open-cockpit body on the original foam-tire SP3 chassis.

- Chrome rims with treaded mini tires (with foam inserts to boot).
- Ball differential.
- 90 percent factory assembled.
- Tons of hop-ups available—all kinds of aluminum and graphite stuff.

SP3 Matiz—1579; \$64.

Lance SP3—1576; \$59.95.



Tamiya Toyota Celica

Wow! That was quick! Tamiya wasted no time getting the Celica out the door. The FF02 chassis underneath delivers front-wheel-drive performance, just like the real thing.

Part no.—58248; \$127.





Tamiya Mad Bison

The Mad Bison adds wide suspension arms, chevron/spike tires, and a flatbed body to a TG-10 chassis for off-road action.

- Full-time shaft-driven 4WD.
- Pull-start Tamiya FS-15LT engine included.
- New lower deck, Slimline muffler, spur and counter-gears.

Part no.—44025; **\$585.**



SVM Tecnago Columbia

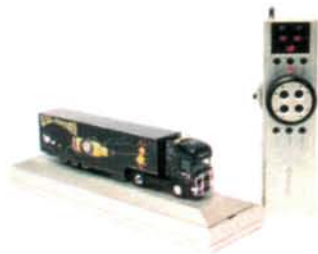
The Italian Tecnago 1/18-scale cars are available with a variety of Lexan bodies and have a winning record. Rick Hohwart won the 1/18 Nationals with a Tecnago! A race-prepped replica is offered, but even the base model is packed with good stuff. Standard features include:

- Efficient chain drive.
- Adjustable racing clutch.
- PMT racing tires and 4-wheel disc brakes.
- Machined ball/cup-type front and rear swaybars.
- Recoil-started 22cc gas engine.

Columbia Standard—**\$1,350.**

Columbia Competition—**\$1,795.**

Rick Hohwart Edition—**\$2,600.**



Keyence Super Desk Runner

Keyence shows off its micro-RC capabilities with the HO-scale Desk Runner, which is easily the trickiest way to get busted for goofing off in the office. It would be cool enough if the little rig simply moved around under RC control, but Keyence actually built in full proportional control along with operating lights, turn signals and the ability to "remember" and automatically repeat driving sequence! A sleek, cell-phone-size transmitter controls it all, and the base is a charger. Much too cool.

Call for more information.



Bolink Nitro Econo Rail and Funny Car

Now, this looks like fun! Let's see; piston power in a slim drag chassis that weighs next to nothing; gear it up!

- Funny Car and Econo Rail versions offered.
- Simple direct-drive power train.
- Foam rear tires on chrome wheels with aluminum, O-ring front wheels.
- Durable fiberglass chassis.

Call for information.



Tamiya F103-TRF Special Chassis Kit

TRF stands for "Tamiya Racing Factory," but what it means is "all the hop-ups!" If you're serious about F103 Le Mans racing, look no further.

- Wide-type carbon chassis with new upper deck.
- Titanium rear axle and height-adjustable gear case.
- Turnbuckles, bearings, ball-mounted rear pod, adjustable aluminum servo mounts and more.

Part no.—58258.

Call for price.



Tamiya Stadium Raider

Add pin-spoke tires, deep offset rims and a great-looking truck body to the rugged, dependable TL01 chassis, and you have the Stadium Raider. Shaft-driven 4WD, friction shocks and sealed gearboxes are all standard.

Part no.—58246; **\$148.**

Holeshot Racing Products TC3 Motor Heat Sink

This clip-on heat sink features the usual Holeshot quality, but the fins have been reconfigured for correct airflow with the TC3's inline motor.

Part no.—2005; **\$24.95.**



Crono Expert

The 1998 European championship-winning machine is now available off the shelf. The Crono Expert is distributed by Ricambi, and there's no shortage of fast features, including:

- Double disc brakes.
- Full bearings and 6-gear differentials.
- 3.5mm T6 chassis.
- Aluminum front hubs.
- Hardened-steel drive gears.

Call for information.



Team Losi Dirt Spec Racing Truck

Losi's vision of cost-controlled, close off-road racing looks like winner. The Dirt Spec truck is basically an off-the-shelf Double-Xt 'CR,' so there's no skimping on equipment. The "spec" factor comes in with the blue spec tires, which will be the proposed class's only legal rubber and a foolproof way of eliminating tire wars and the attendant cost of keeping up. Horsepower is also strictly regulated by the use of only Dirt Spec stick packs and Dirt Spec stock motors—included with the kits.

Part no. A-0074; less than **\$300.**



Mugen Seiki MBX-4 Full Option RTR

Mugen's high-tech, 1/8 off-road racer is now even better: it includes many of Mugen's hot hop-up parts in a ready-to-run package with KO Propo radio installed. This ultimate race combo is built by racers for racers.

- KO Propo Mars radio system with 2143 digital servos.
- Mugen receiver pack.
- NovaRossi/Rex engine.
- NovaRossi tuned pipe and manifold set.
- Pro-Line tires.
- MIP CVDs.

Call for more information.



RobiTronic Pro 2000 Plus Charger

This multifunction charger is designed to charge the latest NiMH and Ni-Cd batteries, and it features three battery peak methods. All charging information is displayed on an LCD screen, which is surrounded by a strong aluminum housing. It's compact, so you'll be able to carry it your track bag or toolbox. The starting timer allows you to program charge start times, so you don't have to worry about forgetting to start the charger.

- Multifunction digital display.
- 0 to 10A charge rate.
- Charges 4 to 7 cells.
- Automatic start timer.
- Voltage-peak, thermal and capacity cut-off systems.

Call for more information.



Orion Darren's Quick Set motor lathe

It should be no surprise that Orion's top motor man would come up with a top-of-the line comm lathe. Unique features and new construction techniques have been used to make the Quick Set lathe as precise as possible yet easy to operate.

- U-slot with milled oil-reserve/centering groove.
- No-shim design with easy-to-adjust centering screw.
- Self-squaring setup for dead-on comm truing.
- Carbide bit supplied; diamond bit available.

Part no.—41600; \$200.

Schumacher Mid-Motor Cat 2000

This prototype 4WD buggy features a similar chassis layout to that of Schumacher's new Axis touring car. The motor is obviously farther forward than in other 4WD buggies, but it looks a little farther aft than a Losi XX-4's motor. Schumacher plans to start testing the car immediately. Stay tuned! Call for information.



Kyosho TF-4 Spider Type R

Kyosho's Touring Force series has been revised again, and the K-car just keeps getting better. The latest additions are aimed at stiffening it and improving its handling.

- New, longer suspension arms are molded of a stiffer material.
- Body mounts are incorporated into the front bumper to reduce body flexing.
- Special bumper stay reduces impact damage

Part no.—KYOC0137; \$399.



Neo T-21 R

Neo hasn't forgotten you electric racers; the T-21 R is a competition platform for all levels of racing. In addition to the standard features, a pivot-ball suspension conversion is available.

- Graphite chassis.
- Aluminum shocks.
- Lightweight Delrin diffs.
- Center-point steering.
- Foam bumper.
- Front universals.

Call for more information.



Serpent Impact Spec 2000

The latest Impact has all the mods that Serpent made to lower the car's center of gravity; they must have worked, since the Impact is the '99 1/8-scale on-road world champ!

- Graphite upper deck holds radio gear lower and close to center for better weight distribution.
- Chassis-mounted fuel tank maintains low CG and allows the removal of the upper deck without having to remove the radio tray.
- 7075 T6 aluminum chassis with carbon radio tray, Centax clutch, one-way front end and more.

Part no.—80837 (kit with Turbo engine); \$640.



Tamiya Audi R8R Roadster

This is the first kit to include the new F103RS chassis with a wide lower deck that permits conventional laydown servo mounting. The 1/10 car also includes reinforced slicks and a driver figure.

Part no.—58247; \$240.



Atlas YM-22 nitro touring car

The YM-22 was built with racing in mind. We saw only a prototype, but we can tell you that it features a double-deck chassis, aluminum lower plate and graphite upper deck and will accept .12 to .15 power. The diff is supported by plastic pieces that are bolted to aluminum bulkheads and also act as shock-tower supports. Long suspension arms are fitted with threaded-body shocks.

Call for more information.



Serpent Vector Spec 2000

Serpent's 1/8-scale super car has (of course) been revised for even greater performance. New features for 2000 include:

- Two sets of rear arms and drive shafts supplied for narrow configuration, quicker steering response.
- New-style wheel adapter with hex nut prevents the loss of wheels in a crash; quick-change levers are also included.
- New graphite rear shock support with ball-mounted shocks for more precise suspension action.
- Adjustable front and rear swaybars.
- 7075 T6 aluminum chassis with carbon radio tray, Centax clutch, one-way front end and more.

Vector Spec 2000 chassis only—909010; \$795.
Vector Spec 2000 with Mega SX-21—909015; \$1,395.

NEW FOR 2000



Pro-Line Aston Martin

With a body this sharp-looking, maybe James Bond will return to Aston Martin—at least for his RC needs. It's Pro-Line's first sedan shell and, as expected, it includes decals and window masks. Part no.—3095; **\$21.95.**



KO Propo ARC System

KO's state-of-the-art ARC (Active Race Control) times RC races without transponders and can track up to 32 cars. The ARC captures each car's receiver "noise" to time cars as accurately as any system currently available.

- No transponders required.
 - Small, easy-to-conceal control box.
 - Standard, wire-loop pick-up coil.
- Call for information.



Mugen Seiki MRX-2 RTR

Mugen's latest 1/8-scale on-road machine already has a world championship title to its credit. The race-proven car is now available in ready-to-run form. It will come with a KO Propo Mars radio, two digital servos, Mugen receiver pack and a JP racing engine.

- Graphite upper deck.
- Threaded shock bodies.
- Centax clutch.
- 5mm chassis.
- Ball-bearing belt tensioner.

Call for more information.



Tamiya TB-10 Prototype

For lack of a better description, this is an electric TG-10! The nitro car's basic shaft-drive system is intact, but the tub chassis is new. For maximum performance, Tamiya made lowering the car's CG a priority, and the kit will include three spur gears. Looks like a rally winner! Call for details.



Pro-Line/Jaco ground tire inserts

These trick inserts are actually ground to shape, ensuring a precise fit. We felt a few pairs of Pro-Line slicks mounted up with the ground inserts, and they may as well have been capped tires. Good stuff. Part no. 2450 (pair).

\$5.95.

Cross Racing Fire Force Formula GT Chassis Kit

This good-looking chassis combines a scale look with plenty of performance potential. Looks as if straight-axle parking-lot racing is making a comeback!

- Pushrod front suspension with inboard mini-shocks.

- Trailing-link rear suspension with unique spring-loaded centering mechanism.
- Accepts F1 and GT-1 bodies (includes GT bumper and body-mount parts).

Part no.—CF-01; **\$229.99.**

This Touring



Visit the Serpent website at www.serpent.com

"New for 2000" Source Guide

Ace Hobby Distributors Inc., 116W. 19th St., Higginsville, MO 64037-0472; (660) 584-7121; fax (660) 584-7766.

Airtronics, 1185 Stanford Ct., Anaheim, CA 92805; (714) 978-1895; fax (714) 978-1895; www.airtronics.net.

Atlas; distributed by Miwa.

Associated Electrics, 3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; fax (714) 850-1744; www.rc10.com; www.team associated.com.

Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30045; (770) 963-0252; fax (770) 963-7334; www.bolink.com.

CEN; distributed by Genika Trading Corp., 1800 East Miraloma Ave., Ste. F, Placentia, CA 92870; (714) 792-1923; fax (714) 792-1968.

Competition Electronics, 3469 Precision Dr., Rockford, IL 61109; (815) 874-8001.

Corally, Ploegstraat 49, 3319 LG Dordrecht, Holland.

Crono; distributed by Ricambi.

Cross Racing; distributed by GTP, 600-A Anton Blvd. (404), Costa Mesa, CA 92626.

DuraTrax; distributed by Great Planes.

Ellegi Technics; distributed by Serpent USA.

Futaba Corp. of America, P.O. Box 19767, Irvine, CA 92723-9767; (949) 455-9888; fax (949) 455-9899; www.futaba-na.com.

GM Racing, 416 Ohio Ave., McDonald, OH 44437; (330) 530-2330; fax (330) 530-2333; website: www.gm-racing.de.

Great Planes Model Distributors, 2904 Research Rd., P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; fax (217) 398-0008.

GS Racing; distributed by General Silicones Co., USA, Inc., 650 W. Duarte Rd., Ste. 205 Arcadia, CA 91007; (626) 445-6036; fax (626) 445-6084; gsusa82@aol.com; www.gsweb.com.tw.

Hitec RCD Inc., 12115 Paine St., Poway, CA 92064; (858) 748-6948; fax (858) 748-1767; www.hitecrdc.com.

Hobby Shack, 18480 Bandilier Circle, Fountain Valley, CA 92728-8610; (714) 964-0827; fax (714) 962-6452.

Holeshot Racing Products, P.O. Box 630, Canton, MA 02021; (508) 587-0663.

Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511; fax (217) 352-0355; www.horizonhobby.com.

HPI, 15321 Barranca Pky., Irvine, CA 92618; (949) 753-1099; fax (949) 753-1098; www.hpiracing.com.

Hudy Special Products (HSP); distributed by Serpent Inc. USA.

JP Racing; distributed by Ace Hobby.

Keyence; distributed by GHI, 2374 North Orange Mall, Orange, CA 92865; (714) 921-0322; fax (714) 921-0380; www.keyence.co.jp.

KO Propo, 17-7, Higashi-Nippori, 4-Chome, Arakawa-Ku, Tokyo, 116-0014, Japan; 81-3-3807-7751; fax 81-3-3807-8155; info@kopropo.co.jp.

Kyosho/Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948.

LRR; distributed by Associated Electrics or Wilhelm-Enssle-Str. 134, 7064 Remshalden, Germany.

MIP, 830 W. Golden Grove Way, Covina, CA 91722; (626) 339-9008; fax (626) 966-2901; www.miponline.com.

Miwa Hobby Co. Ltd., 376 Irinokuchi Kobashigata Miwacho Amagun Aaichi 940-1212 Japan; 81-52-441-2727; fax 81-52-444-3147; www.miwahobby.co.jp.

MRC/Academy; Model Rectifier Corp. (MRC), 80 Newfield Ave., Edison, NJ 08818-6312; (732) 225-6360; fax (732) 225-0091; website: www.modelrec.com.

Magma Intl., 18 Crown Steel Dr., Unit 107, Markham, Ontario, Canada L3R 9X8.

Mugen Seiki Racing Ltd., 17971 Sky Park Cir., Ste. G, Irvine, CA 92614; (949) 475-9505; fax (949) 475-9511.

Multiplex USA, 4913 Revlon Dr., La Canada, CA 91011; (818) 790-0713.

Neo; distributed by Golden Horizons, 311-938 Howe St., Vancouver, BC V6Z 1N9 (604) 207-2108; fax (604) 207-2109.

Niftech, 5565 Wilson Dr., Mentor, OH 44060; (440) 257-6018; fax (440) 257-4281; www.niftech.com.

No Mercy; distributed by Magma Intl.

Novak Electronics Inc., 18910 Teller Ave., Irvine, CA 92612; (949) 833-8873; fax (949) 833-1631; www.teamnovak.com.

NovaRossi, distributed by Rossi Sales of America, 1325 Carol Dr., Memphis, TN 38110; (901) 396-7485.

OFNA Racing, 22692 Granite Way, Ste. B, Laguna Hills, CA 92653; (949) 586-2910; fax (949) 586-8812.

Orlon; see Team Orion.

Peak Performance, 23352-J Madero Rd., Mission Viejo, CA 92691; (949) 707-4683; fax (949) 707-4684.

Pro-Line/Jaco, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968.

Protoform Inc., P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968.

Ricambi, 1455 Rollins Rd., Burlingame, CA 94010; (650) 579-5618; fax (650) 548-9326; www.ricambi.com.

Robitronics; distributed by Trinity Products Inc.

Schumacher USA, 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634; (813) 889-9691; fax (813) 889-9593; www.racing-cars.com.

SEI Racing, 14836 NE 31st Circle, Redmond, WA 98052; (425) 556-9090; fax (425) 556-9292.

Serpent Inc. USA, West Park Center, 2832 NW 79th Ave., Miami, FL 33122; (305) 639-9665; fax (305) 639-9658.

SVM; distributed by Ricambi.

Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656-4200; (800) TAMIYA-A; fax (949) 362-2250; www.tamiya.com.

Team Associated, 3585 Cadillac Ave., Costa Mesa, CA 92626; (714) 850-9342; fax (714) 850-1744; teamassociated.com.

Team Atlas; see Miwa Hobby Co. Ltd.

Thunder Tiger USA; distributed by Ace Hobby Distributors.

Traxxas Corp., 12150 Shiloh Rd., #120, Dallas, TX 75228; (972) 613-3300; fax (972) 613-3599; www.traxxas.com.

Team Losi, 13848 Magnolia Ave., Chino, CA 91710; (909) 465-9728; fax (909) 590-1496; www.teamlosi.com.

Team Orion Inc., 15311 Barranca Pky., Irvine, CA 92618; (949) 864-1720; (949) 864-1722.

Trinity Products Inc., 36 Meridian Rd., Edison, NJ 08820; (732) 635-1600; fax (732) 635-1640; www.teamtrinity.com.

Trinity/Picco; see Trinity.

Car Bites!

Until now, things have been quite pleasant in the gas touring car world.

But that's about to change.

Now there's a

Serpent to contend

with. The all-new

Serpent Impulse

harnesses the

world championship

technology of the Serpent Vector and

Impact M2 to a 1/10th scale, 200mm

touring car. With a 4-wheel independent

suspension that's based on the award

winning Impact M2 design, front and

rear steel-gear differentials, unique

externally adjustable double-piston

shocks, and a CNC machined 7075-T6

aluminum chassis, the Serpent Impulse is yet another example of race-car artistry from the world's most successful maker of radio-control automobiles.

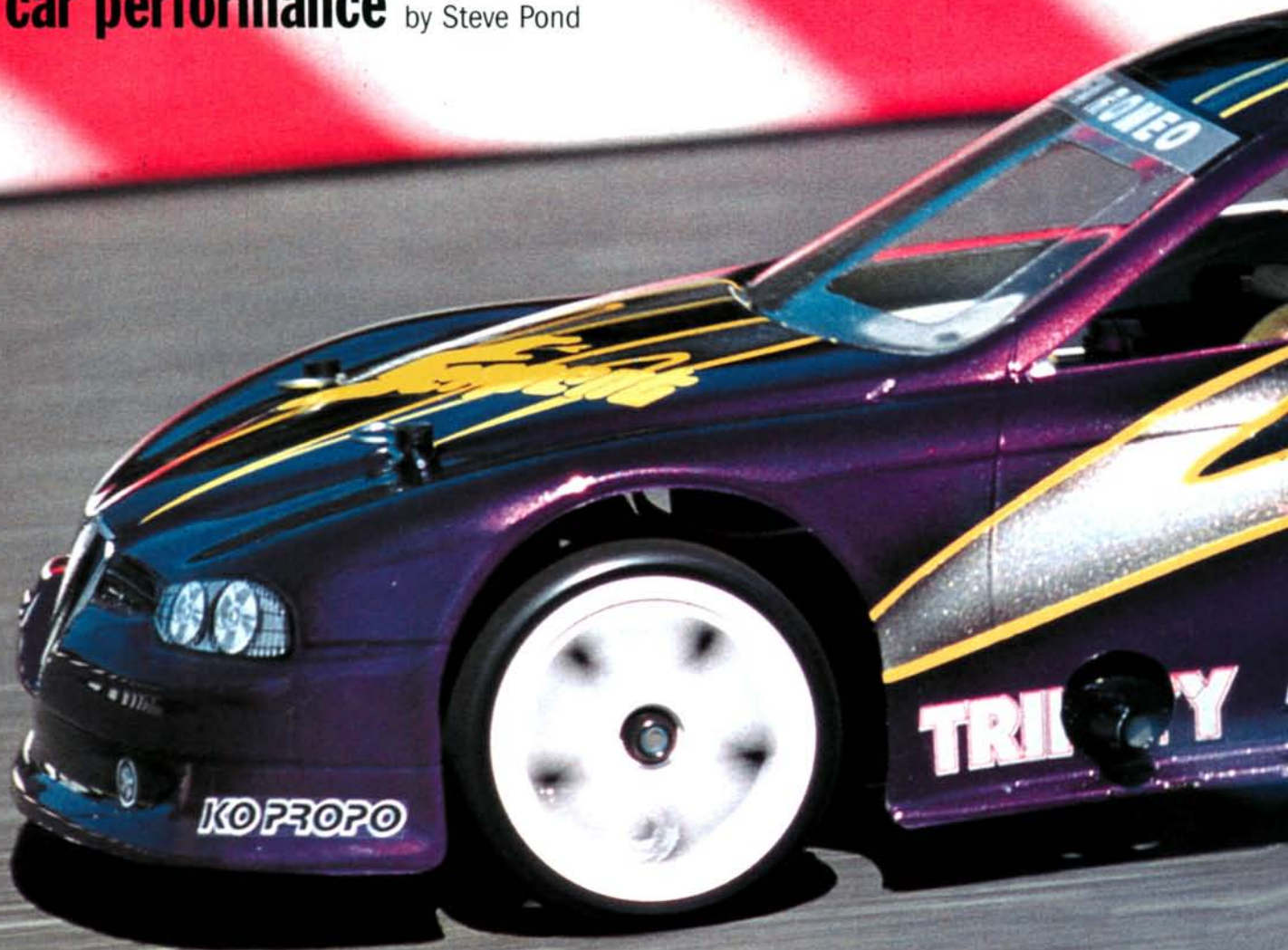
There's a snake on the grid. Now we'll see how fast the rest of the field can run.



Serpent USA, Inc.
2832 NW 79th Ave.
Miami, Florida 33122
Tel: (305) 639 9665
Fax: (305) 639 9658
info@serpent-usa.com

Serpent **Impulse**

Changing the model for nitro touring car performance by Steve Pond



One small step for Serpent*, one giant leap for nitro touring-car racing; these are the most appropriate words I can think of to characterize the introduction of the Impulse. It's a "small" step in part because it's literally the smallest offering ever from Serpent but mostly because nitro-racing thoroughbreds are familiar territory for this manufacturer of too-many-times-to-count world- and national-championship cars.

The "giant leap" for touring cars is the technology the Impulse brings with it. It's the first touring car patterned after the formidable $\frac{1}{8}$ and $\frac{1}{10}$ on-road cars,

PHOTOS BY WALTER SIDAS



so it breaks with traditional nitro touring cars that typically follow electric-powered versions. Instead, the Impulse is a scaled-down rendering of the Impact and Vector cars—both built for the rigors of endurance racing and using very powerful engines.

Can this manufacturer of world-champion on-road nitro cars make an impression on the growing nitro touring market? It intends to do that very thing: to offer a car that stands above all others. I hope this up-close look at the Impulse will tell us how near Serpent is to meeting that mark.

Vehicle type: 1/10 scale, 4WD competition nitro touring
Best buyers: experienced nitro racers

KIT RATINGS (Poor, satisfactory, good, very good, excellent)

Instructions: Satisfactory

Parts fit/finish: Very good

Durability: Excellent

Overall performance: Excellent

LIKES

- Great value for experienced racers.
- Excellent performance and initial durability.
- Can be quickly adjusted without changing any parts.
- Header, tuned pipe and top-quality engine are included.

DISLIKES

- Upper chassis plate flexes too much.
- Standard wheels.
- Aftermarket wheel selection is very limited.
- Limited space available for receiver installation.

specifications

SCALE 1/10
 LIST PRICE \$650
 AVAILABLE AT \$389

DIMENSIONS

Wheelbase 10.2 in. (260mm)
 Width—front 7.64 to 7.75 in. (194 to 197mm)
 —rear 7.835 in. (199mm)

WEIGHT

Gross, as tested 62.6 oz. (1,775g)

CHASSIS

Type Double-deck
 Material (upper/lower) molded plastic/
 3mm 7075 aluminum

DRIVE TRAIN

Type 3-belt
 Primary Clutch bell/spur
 Drive shafts Steel dogbone
 Differential(s) Hardened-steel planetary
 Final drive ratio 5.75:1
 Clutch 2-shoe
 Bearings/bushings Bearings

SUSPENSION (F/R)

Type Double A-arm
 Damping Adjustable oil-filled coil-over

WHEELS

Type One-piece plastic
 Width 24mm

TIRES (NOT INCLUDED)

Type Sorex SE-28 belted slicks

POWERPLANT

Engine Serpent Nova Mega SX-12SE
 Carb 3-needle slide
 Pipe Nova Mega .12/C1
 Fuel used Trinity Monster
 Horsepower 20% nitro

RADIO GEAR (NOT INCLUDED)

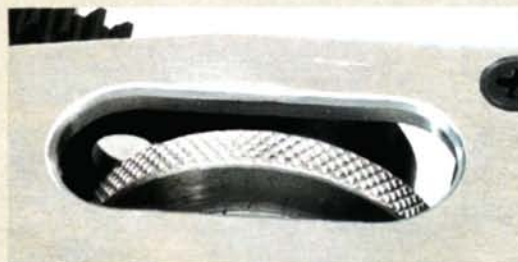
Transmitter KO Propo* EX-1

SERVO (NOT INCLUDED)

Steering KO PDS-2144FET
 Throttle KO PDS-2143FET



The rear suspension features up- and down-travel limiters that make the Impulse the most adjustable in the touring-car segment. The front suspension also features up-travel limiters.



The edges around the flywheel opening have been smoothly rounded to avoid damaging a starter wheel. The Impulse's unique drive-train setup doesn't allow for a pull-start engine, so you'll need a starter box or a bump-starter.

The injection-molded plastic upper radio plate supports the chassis amply, but flexing and vibration are noticeable. If the servo end points aren't properly set, the ultra-powerful KO Propo* digital servos used for testing can quickly twist the plastic upper plate out of shape:



KIT FEATURES

• **DOUBLE-DECK CHASSIS.** The Impulse's foundation is the lower, 3mm-thick, 7075 T6 aluminum chassis plate; it's the thickest I've seen on a 200mm touring car and that aluminum alloy is considerably stronger than the 6061 T6, which is used for most other standard chassis plates.

All of the bottom screw holes have been countersunk to accommodate the large, 3.5mm flat-head screws used to attach all the hardware above. The edges of the flywheel opening have been rounded to avoid grinding away at a starter box's rubber wheel.

The large openings under each diff and in the center under the fuel tank reduce chassis weight and prevent debris from getting trapped in the drive-train belts and pulleys. You might think that the openings expose the drive train to debris, but in my experience, gravity always wins: larger openings give debris more chance to fall out.

The standard molded-plastic upper deck runs from the front-suspension bulkheads to just ahead of the engine. Small braces reach around the engine on both sides to tie the upper deck to the rear bulkheads. The upper deck holds the fuel tank and all the electronics, but it's the chassis' weakest link—made of a scant 2mm-thick molded plastic. Later tests revealed that it's also too long and makes the lower (aluminum) chassis plate bow by 1 to 2mm. It also amplifies engine vibration, which further challenges the radio gear. The braces that reach around the engine are plastic as well, so they're likely to give way under a hard impact, and this will expose the lower aluminum chassis to being damaged.

Just ahead of the front bulkheads are upper and lower bumpers. The lower bumper is attached to the chassis plate, and the upper is attached to the front-suspension bulkheads. Between the two bumpers is a firm foam bumper—the best standard front-end protection on any touring car.



Left: the rear hubs are exceptionally strong and more adjustable than those of any other touring car on the market. Toe angle and camber can both be instantly adjusted with a 2.5mm Allen wrench—even with the engine running!

Right: the small Serpentine-style chassis plate is made of very strong 7075 T6 aluminum.

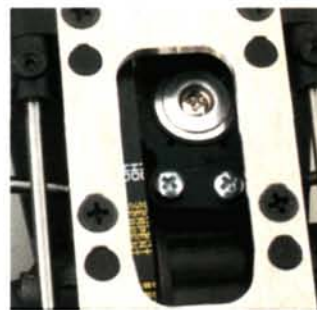
The front suspension, much like the rear, is easily and quickly adjusted. Caster, camber, width, and toe-angle adjustments are all possible without changing any parts. The downside is that the large hub severely limits wheel selection.



• **SUSPENSION AND STEERING.** The suspension system is the most sophisticated and versatile of its breed. The only feature it has in common with those of other touring cars is that it's a double A-arm. The front suspension arms, though taken directly from the Impact 1/10 on-road car, are wildly different from any other nitro tourer's. The inboard sides of the lower arms are incredibly wide—about 2½ inches (65mm) from front to back; the lower arms are well-designed to absorb—and survive—heavy impacts.

At just under 1.2 inches (30mm) front to back, the inside of the upper arms is rather short by comparison. The upper arms are mounted rearward, toward the back of the lower arms. Shims are used to adjust the upper arms' fore and aft positions to adjust caster angle. The upper arms arc upward and forward to reach the steering hubs. The steering hubs are attached to the upper arms with pivot balls similar to those found on the larger Serpent cars.

The distance from the hinge pins to the inboard side of the front suspension arms is less than the distance between the pivot balls on the outboard side of the arms. The upper/inner hinge pin is staggered outboard of the pin for the lower arm. This all adds up to a suspension that's designed to provide camber rise as it's compressed. The front-suspension down-travel limiters are there to adjust droop—a helpful feature for dialing in the car's handling.



The servo-saver has a strong, durable, aluminum center hub. Splined adapters, which mate the servo-saver with the servo, are included for most popular makes of servos.



building & setup tips

For starters, let me say that this car is not for inexperienced builders or those who don't know nitro powerplants. It's a sophisticated machine, and building it cleanly requires patience and a little intuition. The instructions are clearly written by someone who has too much experience. The manual includes excellent exploded-view diagrams, but the vital "grease this," "glue that" and "use thread-lock here" hints are noticeably absent.

The baseline chassis setup is also more labor-intensive than any other any nitro touring car's. That it's the most adjustable car is the very thing that makes it more difficult; if, however, you think you have what it takes to tackle the Impulse, these tips will surely help you rise to the challenge.

■ Steps 1.2 and 2.2. I had to use a 3mm reamer a couple of times to remove burrs from inside the gears where the 3mm pins go. You could also use a 3mm screw or drill bit for this. The burrs are so small that they're barely noticeable, but the pins must be able to move freely in these areas.

■ Steps 1.4 and 2.4. Use silicone sealant to seal the diff housing, or there's a good chance that the grease will leak out over time. And don't use CA to seal the front diffs. The instructions suggest the use of CA to secure the pulley flange; I elected to omit it, as I think the two screws that hold the diff together will hold the flange in place.

■ Steps 1.5 and 2.5. Be careful not to force the drive cups too close to the diff housing during installation.

Leave a little clearance to ensure that the diff doesn't bind during operation.

■ Step 4.5. Grind a flat on the shaft where the setscrew will seat to prevent the no. 9618 retaining collar from coming loose too easily.

■ Steps 5.3 and 8.3. Apply a little grease to make it easier to thread the no. 808344 aluminum pivot-clearance adjusters; without the grease, they are difficult to thread in properly.

■ Step 5.5. Cut an 8.5mm section of fuel tubing and force it all the way into the cavity in the rear axles. This prevents the rear dogbones from popping out of the drive cups when the suspension is fully extended.

■ Step 8.5. Cut a 2.5mm section of fuel tubing and install it in the inner drive cups on the diff. This prevents the front dogbones from popping loose at severe steering angles.

■ Step 10.1. There is a flat edge on one of the four footings of the upper chassis' X-brace. Install the brace so that the flat edge is on the top and facing forward on the left side of the car.

■ Follow the baseline setup instructions given in the manual. I used a Hudy® Set-Up Board to make this process considerably easier. In the absence of the Hudy equipment, be sure to raise the chassis off the work surface at least 5mm; if you don't, the brake cam will throw off your measurements, and you'll have a permanently tweaked car.

The rear suspension has many of the same features as the front. The inner hinge pins are offset and closer together than the outward mounting positions, adding camber rise to the rear suspension as it's compressed. Unlike the front upper arms, the rear upper arms have a fixed mounting position on the rear hubs, so you can't adjust rear track. The lower arms do, however, feature two pivot balls that make rear camber- and toe-angle adjustments possible.

Much like the front suspension, the rear suspension arms have adjustable down-stops, but the rear suspension also has adjustable up-stops. These prevent the chassis from bottoming out under compression.

Both the front and rear suspensions feature ultra-strong hubs whose extra heft allows them to tolerate much more punishment than the average nitro tourer's. Adding to this durability are the massive 12x18mm ball bearings that support the axles. The bearings' size makes them much more able to handle the rigors of nitro touring-car racing. The downside of the hubs' size is that it severely limits wheel choice; they require a wheel with a large inside diameter, free of reinforcing ribs. The standard wheels are too flexible, so I set out to get a set of more rigid wheels. Inch-up wheels would be ideal, but most feature a standard offset that makes the car too wide overall for sanctioned racing. Foam tires, which are allowed at selected tracks and are under consideration for sanctioned racing, don't fit at all. Serpent says it's working on a more rigid wheel, but it would be great if more standard wheels fit the Impulse.

Damping all corners are Serpent's unique, four-step, adjustable shocks. A two-piece piston mounted on a solid shaft can be adjusted to vary the damping rate without having to change the viscosity of the shock oil. The bottom of the shock must be removed from the lower suspension arm and then completely extended. At full extension, the lower half of the two-piece piston is locked into place. Rotating the shock shaft spins the upper half of the piston and allows from one to four holes in both pistons to be aligned. Both halves of the piston are indexed, providing a stop of sorts to ensure the holes in each half of the piston are properly aligned.

The shock bodies and pistons are made of molded plastic. Be careful to avoid rotating the shaft too far, or you'll damage the stop in the pistons.

The steering system is the Impulse's least sophisticated feature: it's simply a servo-mounted servo-saver with a tie rod going to each wheel—no bellcranks, sliding racks, Ackerman adjustments or the like. The servo-saver is of very high quality and has an aluminum center hub and adapters that will fit most popular servos, but the system is still very basic. I replaced the standard threaded

test gear

• **KO Propo® EX-1 radio system and digital servos.** I've always had good luck with the EX-1 radio, and the new digital servos have great holding power and over-

all torque. The 2144 steering servo isn't the fastest, but it offers more than 180 oz.-in. of torque!

• **Mugen® Power Pack 900.** A high-capacity receiver pack is a must for the long Mains in nitro racing. The Mugen pack is offered

in the correct configuration for the Impulse, and its NiMH cells offer a whopping 900mAh of capacity.

• **Trinity Monster Horsepower fuel.** Trinity's® fuel impressed me when Josh Cyrul, running off-the-shelf Trinity juice, ran down other drivers using higher-nitro custom-blended fuel at the ROAR Fuel On-Road Nats. I also like that the lubricant content is listed on the bottle.

• **Team Orion® painted body.** I don't like painting, so I recruited the help of the folks at Team Orion, who delivered an HPI Alfa Romeo body conveniently painted in Serpent colors.

• **Alien Racing® fuel tubing.**

The small section of fuel tubing included with the Impulse is barely enough. I opted for a longer piece of color-coordinated tubing from Alien Racing®. The increased length allowed me to put a loop in the pressure line to prevent the fuel from foaming (caused by over-strong exhaust pulses).

• **Team Sorex® tires and wheels.** The stock wheels are too flimsy, and I know these tires are good because they were used to win the A-main at the ROAR Fuel On-Road Nats.



linkage rods with titanium turnbuckles, but it turned out to be a waste. It's very difficult to get to the turnbuckles for front toe angle adjustment. It would have been just as easy to stick with the standard rods, but hey; now I have titanium!

• **DRIVE TRAIN.** The belt-drive system really shows Serpent's experience in nitro racing. It features three very strong, 3mm-pitch Kevlar-reinforced belts. The rear belt is 5mm wide to handle the extra load of weight transfer under acceleration. Additionally, a 23-tooth pulley drives the 46-tooth rear-diff pulley. That the pulleys in the rear are larger further reduces stress on the belt. By contrast, the front drive, where there is less stress on the drive belts, is a combination of smaller pulleys and thinner belts. The long, 4mm-wide intermediate belt is driven by an 18-tooth pulley that drives a 24-tooth pulley on the outside end of the middle shaft. To the inside of the middle shaft is a 16-tooth pulley that drives the front, 4mm-wide belt. The belt reaches forward to the front diff, which sports a 24-tooth pulley. This makes the overall front-drive ratio the same as the rears'. The intermediate belt runs along the side of the chassis instead of along its center, so the fuel tank can be mounted centrally—almost exactly over the center of gravity. This prevents changes in the fuel load from altering the car's handling.

The front and rear diffs' internals are identical. The diffs feature hardened planetary gears that are very strong and run very smoothly. Serpent includes a heavy diff-gear lube that seems to be the equivalent of the heavy lubes frequently used in 1/8 off-road racing. When cornering, it limits the diff action so the drive out of them is more positive. Hardened-steel dogbones transfer power from the diffs to the wheels.

• **ENGINE.** An engine is not typically included with competition touring-car kits, but the Impulse comes with one for two reasons: first, it requires an engine with a special pilot-shaft crank; second, the included Nova Mega SX-12SE not only has the crankshaft needed, but it's also currently one of the most powerful engines you can stuff into a nitro tourer. Made by NovaRossi to Serpent's specifications, it features a 3-needle slide carb, a special header (to reach over the intermediate drive belt) and a tuned pipe to match.

The Impulse's standard 2-shoe clutch is mounted on an aluminum flywheel. The clutch bell has interchangeable screw-on gears that allow gear changes without clutch-bell removal. A 16-tooth gear drives a 46-tooth spur; 15- and 17-tooth gears are available as options, so final drive ratios in the 5.41:1 to 6.13:1 range are available. The 16-tooth clutch gear provides a 5.75:1 ratio.

• **BODY, TIRES AND WHEELS.** I called on the services of Team Orion* to cover the body-less Impulse. I don't like painting, and Team Orion's new painted HPI bodies were just what the doctor ordered. I was sent a color-coordinated, Alfa Romeo body that simply required a few decals and some body trimming. It turned out to be an ideal body for the snakemobile because the foam bumper didn't require any special fitting to match the front end's contour.

As previously mentioned, I wasn't comfortable with the amount of flexing in the stock wheels, so I reached into my box of goodies and pulled out a set of Team Sorex* wheels and tires. This relatively new manufacturer from Japan offers a wide range of tire compounds to suit various temperatures. The wheels were just barely large enough to fit over the big hubs, so larger would have been better. The tires, however, are the same belted slicks as were

used to win the national championship at the ROAR Gas On-road Nats last year. I chose the SE28 compound, which is best suited to run with ambient temperatures in the 28-degree Celsius range. I stuffed the tires with Yokomo's* firm inserts.

PERFORMANCE

Before I ran the Impulse all-out, I gave the Nova Mega engine a smooth break-in.

These Italian powerhouses run very tight tolerances and respond very well to proper break-in. The flip side is they don't respond well when hammered right off the starter box on their first time out. After that, the Impulse was ready for some lap times. I ran solo at the outdoor track because the season was coming to a close, but having driven the same lines there often with other cars, it's familiar ground.

The Impulse's drive train: the most advanced nitro touring car belt-drive system. The large rear diff pulley and 5mm rear belt are better able to handle the high loads imposed by the new generation of engines in the .12 class.

The Nova Mega's power is staggering. Its snappy, powerful bottom end can be overwhelming at times, even for a four-wheel-drive asphalt car, but the 5.75:1 final drive ratio makes acceleration a little more controllable. That ratio is a little taller than those of other nitro touring cars, which generally fall in the low- to middle-6 range. It's a good mid-range gear for a medium-length track on which you might consider going to a 2-speed transmission. The stock gearing is tall enough to take some bite out of the engine's bottom end while giving the car enough legs to run fast enough to keep pace.

With its sharp steering, the Serpent's cornering is exceptional; it stays flat. I started with the shocks set at the firmest setting, and it was ideal for most parts of the very flat track. My only problem was when going through a switchback with a slightly rippled surface. Quick changes of direction made the rear end swagger a little, so I took one click out of the rear shocks to soften the damping and settle the rear.

After a little more dialing of camber angles and ride height, the Impulse clicked off lap times of less than a tenth off the pace of cars with which I've had months to get dialed in. The car's extra weight can push it a little deeply into tight corners at the end of a long straight, but it shines everywhere else. I've only had a chance to put about 1/2 gallon through the engine, so track time has been limited. I had no mechanical problems with the car, but it may take much more track time for any gremlins to show up.

CONCLUSION

Despite my short list of minor complaints, I say the Impulse is an excellent all-around car. It isn't perfect, but it does set new standards for nitro touring. Its performance during my admittedly limited test runs was stellar, and other than the very soft metal exhaust header's bending, I had no concerns about its durability—and it did suffer quite a few hard knocks against the boards.

A tremendous strength is how quickly and easily the car can be adjusted. No parts need to be removed or replaced to alter the suspension geometry. A 1.5 and 2.5mm Allen wrench are all you'll need to make suspension changes.

I consider the Impulse to be the best value in the competition nitro touring market. Other cars might represent better value for those who don't compete, but not for those on the racetrack. It includes many features that are optional extras on other kits, and its competition engine is currently at the top of its class.

Is it the best? I have to say it is—not perfect, but certainly the best all-around package for any serious nitro touring racer.

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

Tamiya Wild Willy 2

Jeep thrills! Tamiya revisits an RC classic by Peter Vieira

Back in the early '80s, he was a star, up there on that hobby-shop shelf. He ruled over paint-by-numbers "Last Supper," Doodle-Art sets, Tasco telescopes and AFX slot-car tracks. "I'm radio-controlled," his box-art seemed to intone, "and, I do wheelies. In a *Jeep*. Top that, macramé kit!" Kids gasped when they saw him. Dads smiled knowingly. Tamiya's* Wild Willy was the object of rabid hobby lust back then, loved, no doubt, because it was simultaneously caricature, scale model and action-packed RC kit. No self-



PHOTOS BY WALTER SIDAS



respecting kid would describe Wild Willy so analytically, of course. An awed "Raaadical" was all that needed to be said; a single word that spoke volumes (in the '80s, anyway).

Now, as we bid farewell to the '90s, Wild Willy is back—as Wild Willy 2. This time around, everyone's favorite glowering, chin-out, gauntlet-gloved speed demon has an all-new chassis beneath his injection-molded Jeep body, but the familiar wheelie-popping spirit is still very much intact. Is the sequel as much fun as the original? Can the new Willy compete with golden memories of the original? Should we skip the overwrought sentimentality and get down to the business of testing this bad boy? Yes, yes, emphatically yes!



Vehicle type: 1/10-scale, electric, 2WD, off-road "fun" car
Best buyer: anyone whose RC needs call for durability, long run times and fun—with the emphasis on *fun*. Bonus points if your modeling tastes lean toward scale detail.

KIT RATINGS (excellent, very good, good, satisfactory, poor)
Instructions: excellent
Parts fit/finish: excellent
Durability: very good
Overall performance: satisfactory

LIKES

- Fun-to-finish scale body and cartoonish driver figure.
- Offers ultimate stress-relief.
- Finished kit looks great on the shelf.

DISLIKES

- Nothing to dislike here, as long as you remember that the Wild Willy 2 is a novelty, not a performance machine.

specifications

LIST PRICE\$198
 AVAILABLE AT\$140

DIMENSIONS

Length overall13 in. (335mm)
 Wheelbase6.7 in. (170mm)
 Width (F/R)9.8/10.2 in. (250/260mm)

WEIGHT

Gross, RTR80 oz. (2,268g)

CHASSIS

TypeMolded space frame
 MaterialPlastic

DRIVE TRAIN

TypeGearbox
 PrimaryPinion/spur gear
 Transmission ratio8.32:1
 Final drive ratio18.03:1
 Drive shaftsDogbone
 Differential(s)3-gear
 Bearing typePlastic bushings

SUSPENSION

TypeIndependent A-arm
 DampingFriction shocks
 Camber linksMolded, nonadjustable
 Tie rodsSteel, threaded-rod

WHEELS

TypeChrome-plated, one-piece plastic
 Dimensions (DxW)55x58mm

TIRES

TypeChevron-tread rubber

ELECTRONICS

MotorMabuchi 540
 Speed controlTamiya mechanical w/reverse
 RadioFutaba Magnum Junior (not included)
 Steering/throttle servosFutaba S3003 (not included)
 BatteryDuraTrax 2000mAh (not included)

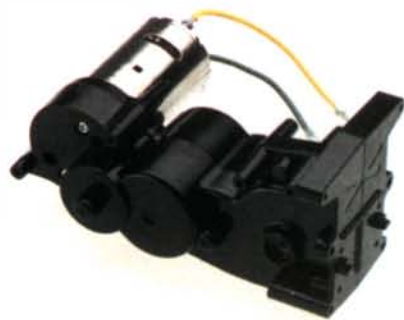
TOP SPEED AS TESTED12.4mph*

* Accurate for test car only. Top speed varies with setup. Your vehicle may be faster or slower.



Super-stiff springs put the "boing" in Wild Willy 2's front bumper. The kit also includes an extra-wide "training bumper" that's great for demolition-derby action.

The secret of Wild Willy's wheelie ability is a combination of a low gear ratio, high center of gravity and this wheelie bar. It's effective, but aggressive reverse-to-forward wheelies can still dump Wild Willy onto his oversize head.



The gearbox pops out of the box just as you see here—with motor installed and all.

KIT FEATURES

• **CHASSIS.** Tamiya has designated the Wild Willy 2 a "WR-02" chassis, and it has to be the company's most unique design to date. The chassis has three main sections: the gearbox/rear bulkhead; a space frame that forms the front bulkhead and stick-pack tray; and a pair of side rails that emulate a full-scale Jeep's frame rails. The battery tray almost completely encloses the pack and is held shut by a cap and a pair of body clips. Battery-tray placement is the key to Wild Willy's wheelie-popping ability; with the heavy pack positioned high and aft of the car's center of gravity, it's easy to loft the front wheels.



The prebuilt gearbox is one half of the WR-02 chassis; this is the other half. The front bulkhead houses the servo, and the battery slides into the tail section.

building & setup tips

The Wild Willy 2 (WW2) is a simple kit to assemble; even inexperienced builders should be able to get the rolling chassis up and running in a day. If the WW2 is your second or third kit, you should be able to whip the chassis together in a couple of hours. That's the chassis *only*, mind you; unless you're into the monochromatic, snap-together model look, you'll need to spend some quality time painting the driver figure and super-detailed body. Since assembling the chassis is a no-brainer, I've devoted all my tips to finishing the plastic parts.

■ **Parts preparation.** Before you start spraying, dump all the plastic body and driver parts into the kitchen sink and wash them in warm water with dishwashing liquid to remove any mold-release agent that might prevent the paint from sticking. For this, you can leave the parts on the parts tree for easier handling. Don't skip this step!

■ **Surface prep.** Scuff all the parts with a scouring pad. This will help the paint (or primer) to adhere.

■ **Primer.** If you plan to give your WW2 a glossy finish, first prime the parts with enamel primer. I like Dupli-Color primer because it dries faster than other brands. Before you spray, test the primer on a piece of

the parts tree. (That's a general tip for priming; I had no trouble using Dupli-Color on the WW2's plastic.) If you prefer the flat, military look, you can skip the primer and apply paint directly to the body.

■ **Driver figure.** I used flat, water-based paints to finish Wild Willy himself. Only his helmet got the gloss treatment. To accentuate the undulations of his suit, I brushed thinned black paint over the body then lightly wiped off the excess with a paper towel. This removed the paint from the high spots and left a nice "shadow" in the folds and wrinkles. I finished Willy's face with flat, water-based paints; these are great for fine details because mistakes can be wiped off with a damp towel.

■ **Masking.** Much of the detail on the body and its trim pieces can be painted freehand, but a bit of masking work will guarantee crisp color separation on items such as the nitrous bottle, steering wheel and winch. For textured surfaces, Hobbico's Liquid Mask is the best bet. Smooth surfaces can be masked with regular masking tape, but I like to use Pactra's Fine Line tape, which is sold in widths from 1/16 inch. It's great for mounting the straps on the nitrous bottle and fire extinguisher.

• **SUSPENSION/STEERING.** There's a little bit of TL01 in the Wild Willy 2; the two-piece suspension arms, hub carriers and friction shocks were lifted directly from Tamiya's tough, entry-level tourer. The shocks use greased-rubber sleeves to damp the action of the shock shafts, which are just smooth-shank screws. Another feature shared with the TL01 is the steering design. The WR-02 chassis clamps the steering servo between its halves and does away with steering bellcranks.

you'll need

- 2-channel radio system.
- Steering and throttle servos (or one servo and an ESC).
- Enamel paint for static models.
- CA glue for the tires.
- 6-cell, stick-type battery pack.
- Charger.

factory options

- High-torque servo saver—part no. 50473.
- CVA Super Mini shock set—50746.
- TL01 adjustable upper arm set—53303.
- Aluminum servo stay—53306.
- On-road tuned-spring set—53163.

• **DRIVE TRAIN.** Tamiya goes all out for first-time-builder convenience by assembling the gearbox for you. The enclosed, plastic-bushed design houses a 4-gear reduction that delivers a very high final drive ratio that contributes to the Wild Willy 2's amazing wheelie ability. A 3-gear diff allows the short-wheelbase car to corner tightly, and steel dogbones spin the bushed rear axles.

• **WHEELS, TIRES AND BODY.** Chevron-tread tires and deeply chromed rims lend the Wild Willy 2 a custom look, and the plating is flawless. The Jeep body and Wild Willy figure speak for themselves: the details are perfect and

the molding couldn't be more precise. The body is molded in green and looks OK unpainted, but Willy is all white and needs to be detailed, or he will look like a pile of melted vanilla ice cream sitting in the driver's seat.

• **MOTOR AND SPEED CONTROL.** Tamiya's good ol' chrome-can Mabuchi 540 motor is factory-installed in the gearbox, and a 3-step mechanical speed control with reverse is included.

test gear



• Futaba® Magnum Junior AM transmitter and R122JE receiver.

I could have used the even more affordable Magnum Sport, but once you've been spoiled by endpoint adjustments, it's hard to go back. The Mag Junior allows throttle and steering-throw tweaks, and that makes it simple to dial in mechanical speed control and to tame the twitchy

handling of the micro-wheelbase WR-02 chassis.

• Futaba S3003 servos

The 40 oz.-in. servos included with the Mag Junior are more than capable of handling the demands of little Wild Willy, and they're a perfect fit.

• DuraTrax® 2000mAh stick pack

Eight or 10 minutes just

isn't enough time to play with a fun car like the Wild Willy 2, so I used a 2000 pack for maximum run time. With the tame kit motor and the stick pack, you can easily get a solid half hour on a charge—although it will feel like much less, since time really does fly when you're having fun.

The Original Wild Willy '80s Flashback

Since we are talking about Wild Willy 2, you may be wondering what the *first* Wild Willy was like. Judging by a quick look at the photos here, you might expect the first Willy to be identical to his year-2000 cousin (with the exception of the ribbed tires). Actually, everything beneath the injection-molded body is completely different from the new machine.



"Completely different" is, in fact, an understatement. First, consider the suspension: the original Willy had front swingarms with integral hub carriers. There was no articulation for the steering arm, so camber changed radically with suspension movement. In the rear, chunky trailing arms held a giant differential and straight axle, which was suspended by undamped springs for a trampoline-like ride.

The suspension parts were bolted to a chassis that was an odd mix of aluminum plates and tubes, and to a molded box that held the elec-



tronics. Like other Tamiya cars of this vintage, the chassis was designed to accept a plastic-encased hump pack, and there's room for a separate receiver pack. (Battery eliminator circuit? It was the early '80s—who knew?)

One thing that hasn't changed—not including the body and driver—is the experience of driving a Wild Willy. It's all about wheelies and fun, and the original recipe delivered just as well as the new flavor. Of course, the Wild Willy 2 does improve on the original with superior durability and assembly ease!



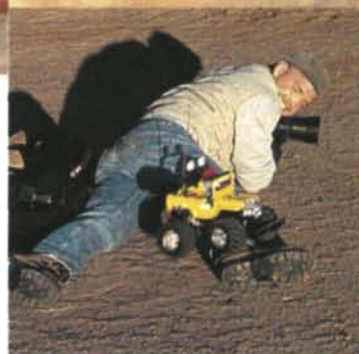
You just know these guys are hacking each other to death. That's OK; Willy can take it.

PERFORMANCE

What is an ideal place to test the Wild Willy 2? Anywhere, really. Thanks to the kit's mild, 540 motor and short wheelbase, it's easy to snake it around a living room without knocking over end tables, and the spring-loaded front bumper helps prevent anything from being damaged. For *total* hacks, an optional extra-wide "training bumper" protects the car from just about anything short of a full-scale-car run-over.

If he's already up to speed, Willy will get a little loose in the turns. However, Willy doesn't like to turn while accelerating; the steering is very light, because Willy wants to wheelie. Just mash the throttle, and the front wheels are in the air!

High-traction surfaces such as pavement require a lighter touch, as Willy will traction-roll easily because of the heavy, high-mounted body. Off-road is where Willy looks most at home, and his chevron-tread tires tear up the dirt. The suspension could be more effective, but Willy stays shiny side up on most terrain. He even jumps better



Wild Willy meets Wild Walter.





than you might expect, but don't take him too high off the ground, or you'll bounce him right onto his noggin.

THE VERDICT

Ugh! Must resist urge to use lame "smiles-per-hour" line! Aw, I can't help it. The Wild Willy 2 offers the most entertaining way to drain a stick pack since—well—since the original Wild Willy. Add the scale appeal of the body, and you have a rare blend of static modeling craftsmanship, ease of assembly and the fun of controlling a car from a comfortable chair when you've finished putting it together. And for you "old-timers," the nostalgia angle is nearly irresistible. I hope the "WR-02" chassis designation is an indication that Tamiya plans to introduce additional wheelie-machine reissues using the same chassis. Anyone for a Midnight Pumpkin 2 and a Lunchbox 2?

**Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■*



Wilder Willys!

I tested a box-stock Wild Willy 2 for this review, but a couple of the other Willys featured here got some, ahem, "extra attention." The red machine sports an extra-wide rear end, thanks to a set of Tamiya Blazing Star suspension arms and camber links, and Tamiya's Low Friction shocks were added as well. Less visible but much more noteworthy are the GM Racing Dr. Speed 12x2 mod and Novak Reactor ESC I installed: this Willy is truly wild! Top speed jumped to 24mph with the new motor, but that's way too much power. Oh, the car can take it all right, but it's very hard to keep the front wheels on the ground! Steve Pond found a much better horsepower match for the Willy with Trinity's Chameleon 19-turn mod. Running a 3000mAh pack, he got a solid half hour of scoot and a top speed of 18.5mph. That's plenty fast for a Wild Willy 2, and it's all usable power.



This "arctic camo" Wild Willy looks cool—get it? Yeah, I'm pretty funny, I know.



This Willy sports an extra-wide rear stance courtesy of a Blazing Star suspension setup.



Here's a street-ready machine. Paint adds a lot of personality to the Wild Willy 2, and because the body is painted on the outside, you can repaint it when you're ready for a new look.



Yokomo MR4-TC

The legendary brand enters entry level by Chris Marcy

The touring-car class has been growing year by year, and new sedans seem to come out almost every month in various price ranges to suit beginners to pros and everyone in between. Although best known for its no-holds-barred racing kits, Yokomo* now has a “budget” contender in the touring-car wars: the MR4-TC. The TC uses a molded-composite chassis instead of pricier graphite plate, and this is reflected in the car’s street price—about \$170. The car may be light on price, but it’s heavy on features. It’s so well equipped, in fact, that Yokomo hotshoes Barry Baker and Masami Hirosaka have both won with the car at major events such as the NORRCA On-Road Nats, Reedy Touring Car Race of Champions and LRP Touring Car Challenge.

PHOTOS BY WALTER SIDAS



DATA CENTER

Vehicle type: 1/10-scale electric touring car

Best buyer: racers looking for an inexpensive, competitive touring car

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions: good

Parts fit/finish: very good

Durability: satisfactory

Overall performance: very good

LIKES

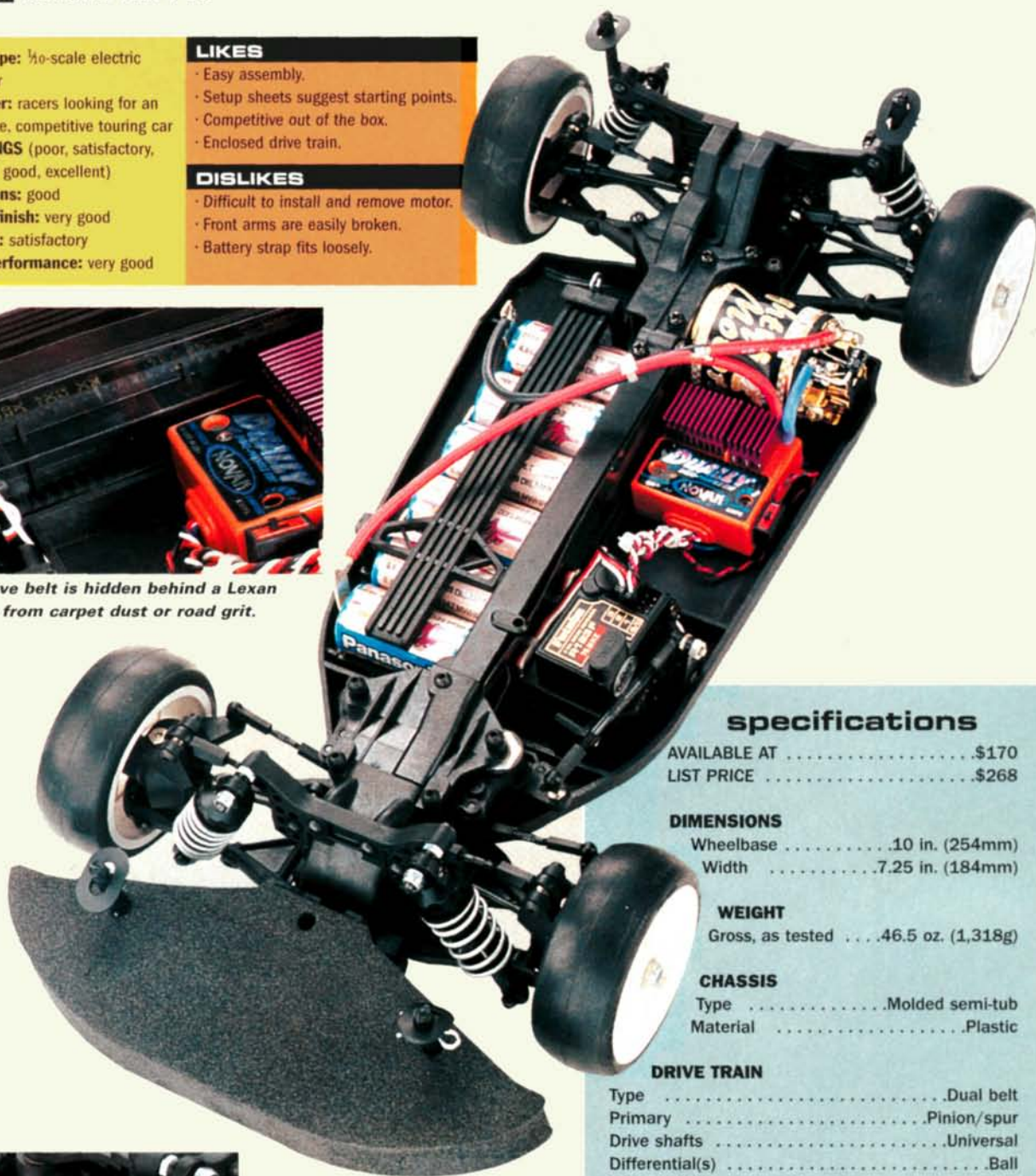
- Easy assembly.
- Setup sheets suggest starting points.
- Competitive out of the box.
- Enclosed drive train.

DISLIKES

- Difficult to install and remove motor.
- Front arms are easily broken.
- Battery strap fits loosely.



The front drive belt is hidden behind a Lexan shield, away from carpet dust or road grit.



specifications

AVAILABLE AT\$170
LIST PRICE\$268

DIMENSIONS

Wheelbase10 in. (254mm)
Width7.25 in. (184mm)

WEIGHT

Gross, as tested46.5 oz. (1,318g)

CHASSIS

TypeMolded semi-tub
MaterialPlastic

DRIVE TRAIN

TypeDual belt
PrimaryPinion/spur
Drive shaftsUniversal
Differential(s)Ball
Slipper clutchNone
Bearings/bushingsBearings

SUSPENSION (F/R)

TypeLower A-arm w/upper camber link
DampingOil-filled coil-over shocks

WHEELS

TypeOne-piece plastic
Dimensions (DxW)2x1 in. (51x25mm)

TIRES

TypeMedium slicks w/foam inserts

ELECTRICS (NOT INCLUDED)

MotorMighty 11x3 modified
ESCNovak Dually
Steering servoJR Super servo



Lots of interesting stuff here; note the capped suspension arms, the screw that captures the 2mm hinge pin and the thick hub carriers.

KIT FEATURES

• **CHASSIS.** Unlike Yokomo's "YR" cars, the MR4-TC uses a lightweight, molded-composite chassis. This type of chassis is much more cost effective than traditional graphite. Once assembled, the chassis has very little flex. Stick- or side-by-side packs can be installed on the right side of the chassis, while the left side accommodates all the electronic gear. The chassis is split by a molded "spine" that encloses the front drive belt and protects it from the elements with a Lexan shield. The chassis's left-to-right balance seems very good.

• **SUSPENSION.** Nothing unusual here; the MR4-TC features lower A-arms molded from the same material as the chassis. The arms are mounted with 3mm inboard hinge pins and 2mm pins on the outside. A screw threaded into the arm captures the outer hinge pins and eliminates the need for E-clips. The upper camber links are steel turnbuckles that are easily adjusted with the kit-supplied wrench. The kit's plastic, oil-filled shocks feature double O-ring seals and screw-on caps with bleed holes, and these make it easy to build smooth, air-free shocks.

• **DRIVE TRAIN.** Yokomo stuck with a conventional, two-belt drive system to spin the TC's front and rear ball differentials. These are easily adjusted by removing the upper camber link. A roller bearing is installed on the aluminum motor mount as a tensioner for the front belt.

• **STEERING.** The MR4-TC uses bell-crank steering with a built-in servo-saver. The kit comes with bushings for the steering, but they can be replaced with four, 4x8mm bearings. Servo mounts are sup-

plied with the car; for easy servo alignment, the servo is mounted slightly offset to the front left of the car.

• **BODY, WHEELS AND TIRES.** I tested the MR4-TC with the included Stratus shell, which is used by many racers because of its sleek design. The kit tires are 24mm medium compound with foam inserts. Not a bad starting point, but most racers opt for Yokomo's molded-rubber inserts.

PERFORMANCE

Before I hit the track, I dialed in the MR4-TC with the factory-suggested setup. Although the tire inserts that come with the car are softer than I would normally run, I left them alone, as I wanted to see how the car would fare out of the box. To get a feel for the car, I took it slow through the first few laps. Although it leaned a little more in the turns than I prefer, it felt stuck to the track. Confident of the car's handling, I laid down the power of the 11-double modified motor. I was very surprised by the car's performance. Feeling brave, I carved the corners a little more tightly; too tightly, as I tapped a board and broke the right front suspension arm. While I had the car apart to install a new arm, I figured I would try another setup. I left the pistons unchanged and put 60WT oil in all four shocks. Then I installed Yokomo's orange springs all around. The only other things I changed

were the tires. I installed Yokomo tires that were identical to the kit rubber but I used Yokomo's "medium" rubber inserts, which are firmer than the included open-cell foam inserts. Back to the track I went. Now the car had very little roll and lots of traction. I lowered the ride height and was very impressed with the MR4-TC's performance.

CONCLUSION

I wasn't sure what to expect from this car; when it was released, I thought it was a "sport" sedan. After building and testing it, I have decided it's definitely a performance sedan. I have driven most of the sedans on the market today, and in terms of performance, this car is right up there with the best of them. Since completing the initial performance testing, however, I have found the front end to be a bit damage-prone. Be sure to run a foam

bumper! As with any other high-performance car, you may want to change the tires, inserts and springs for optimum performance, but the Yokomo MR4-TC is a competent racecar right out of the box.

building & setup tips

■ **Shocks.** The shocks use foam inserts as volume compensators; make sure that you saturate these with shock fluid before installing them, or you will have air in your shocks. I used no. 3 pistons in the front and no. 2 pistons in the rear with 60WT oil all around. After filling the shocks, pump the shafts slowly and then allow them to sit upright so air will come to the top. When all the air has escaped, put some oil in the cap and install it on the shock. Next, push the piston slowly upward to allow excess oil to escape through the bleeder hole, and install a bleeder screw. The stock shock springs worked well, but I chose to use Yokomo's orange springs.

■ **Differentials.** The MR4-TC uses ball diffs in the front and rear, but pay close attention to the differential halves; the front and rear are different sizes. Use Associated* Stealth diff lube on the diff balls and Associated black grease on the thrust balls. Be aware that the kit includes extra thrust balls—use only six in each diff. Work the diffs back and forth when you tighten them so you won't make flat spots on the balls.

■ **Motor installation.** I cut the motor cover plate on the side where the pinion is so I could remove and install the motor without removing its cover plate.

you'll need

- 2-channel radio.
- Steering servo.
- Electronic speed control.
- 6-cell battery pack (stick or side-by-side).
- Charger.
- CA glue.
- Motor.

factory options

- Lightweight main gear adapter—part no. ZS-630A.
- Low-friction belts (F/R)—ZS-637S/ZS-132S.
- Threaded aluminum shocks—YS-1SSS-5.
- Front one-way unit—ZS-540T.
- Bearings for steering—BB-84-4.
- Hard universals (F/R)—ZS-010FH/ZS-010RH.
- Graphite composite parts. All of the kit's molded parts are available in graphite conversions; add "G" to the part number.

test gear

• **Novak* Dually ESC.** Novak's newest controller includes "stock" and "modified" profiles to suit your motor choice. The stock profile is noticeably punchier, while the mod

profile helps to smoothly roll on the power of low-wind mills. You can also use the mod profile with a stock motor (and vice versa) if conditions warrant; you should experiment to see which works best for your track.

• **Mighty Motors* 11x2 modified.** Mighty Motors is a local company that produces hand-wound

mods built around Trinity cans and arms. I've had good luck with them, and they're a shop favorite at RC Madness. Ten- to 12-turn mods are the wind of choice for the outdoor track at Madness.

• **New Wave* cells 3000mAh pack.** Time for some shameless self-promotion: I installed cells I matched under my own brand name, New Wave. The 3000mAh are now legal, and they guarantee I'll make run time even with a hairy 11 double.

• **Futaba* Magnum Junior FM transmitter.** Futaba's Mag Junior is a classic, low-dollar racer's radio; now, with the power of an FM signal, it's better than ever.

• **JR* Super servo.** The Super model delivers plenty of speed and torque for touring-car action, and it has a nice feel. Added bonus: JR plugs interface with Futaba receivers without modification.



*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■



Kyosho Inferno MP-6 Sports

An MP-6 for the masses by Peter Vieira

For those of you who aren't familiar with the top machines in the 1/8-scale, off-road arena, allow me to introduce a vehicle that, to the initiated, needs no introduction: the Kyosho Inferno. Descended from Kyosho's IFMAR championship-

winning Turbo Burns, the Inferno has emulated the Burns' winning ways by bringing home the hardware from every IFMAR 1/8-scale, Off-Road Worlds since '92. Not that the car has gone unchanged; MP-5 and MP-6 versions followed the original, "just call me

PHOTOS BY WALTER SODAS



Inferno" model, and the recent MP-6 International is Kyosho's wallet-busting, full-option version of the car. Now, Big K has released an MP-6 that slots into the opposite end of the price spectrum: the Inferno MP-6 Sports. This is not to say that Kyosho has skimped on

the specs; the Sports includes a .21 pull-start engine, full bearing set, aluminum shocks and partial factory assembly. Is it enough to match the performance of a standard MP-6, or is the Sports strictly for big-scale play? I'm on a mission to find out.

Vehicle type: 1/8-scale, nitro-powered 4WD racing buggy

Best buyer: racers who want to get started in 1/8 scale inexpensively; enthusiasts who want a user-friendly, 1/8-scale buggy for play.

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions: good

Parts fit/finish: very good

Durability: very good chassis, poor engine

Overall performance: good

LIKES

- Handling rivals "cost-no-object" version of MP-6.
- Capable on the track; unbeatable for play.

DISLIKES

- Engine runs very hot.
- Chassis is not countersunk.
- Shock-mounting pins tend to creep out of the suspension arms.

The Sports uses standard MP-6 suspension parts.

Note the blind pin that secures the lower shock eyelet via a setscrew. During testing, these pins tended to creep out.



The Kyosho GS21-R engine now features a composite carburetor, and it performs flawlessly. Note the undrilled mounting flange on the engine's case; the engine is bolted directly to the chassis through tapped holes in the bottom of the case.



specifications

LIST PRICE \$599.99
AVAILABLE AT \$475

DIMENSIONS

Length overall 19.5 in. (496mm)
 Wheelbase 13.03 in. (331mm)
 Width 11.93 in. (303mm)

WEIGHT

Gross, RTR 110.6 oz. (3,136g)

CHASSIS

Type Stamped plate with radio tray
 Material Aluminum

DRIVE TRAIN

Type Shaft-driven gearbox
 Primary 13T clutch bell/46T plastic spur gear
 Transmission ratio 3.31:1
 Final drive ratio 6.85:1
 Drive shafts Steel dogbones
 Differential(s) Front, center and rear diffs; bevel gear
 Bearing type Shielded ball bearings throughout

SUSPENSION (F/R)

Type Lower A-arm, upper wishbone/lower A-arm, upper link
 Damping Aluminum body, oil-filled shocks
 Camber links Adjustable threaded rod
 Tie rods Adjustable threaded rod

WHEELS

Type One-piece plastic 5-spoke
 Dimensions (DxW) 3.15x1.61 in. (80x40mm)

TIRES

Type Multi-spoke

ENGINE AND ACCESSORIES

Engine Kyosho GS21R
 Starting mechanism Pull-starter
 Carburetor Composite slide valve, 2-needle
 Manifold Kyosho bolt-on
 Pipe Kyosho cast-aluminum tuned-style

ELECTRONICS (not included)

Transmitter/receiver JR Racing R-1
 Steering servo Hitec HS-945MG
 Throttle/brake servo Hitec HS-925MG
 Receiver pack KO Propo 6V, 600mAh

The three-piece, cast-alloy pipe included with the Sports features a deep convergence cone. This setup is much quieter than a racing pipe and will help keep your neighbors friendly.



KIT FEATURES

• **CHASSIS.** This is where Kyosho trimmed some corners to keep down the Sports' cost. Not that the chassis parts aren't well made; the 2.5mm aluminum main plate is precisely stamped and nicely finished, the blue-anodized radio tray looks trick, and the rear stiffening rod is a shapely steel piece rather than mere threaded rod. The

chassis is not countersunk, though, and the radio tray is joined to the chassis with plastic standoffs. Neither cost-saving measure will have a significant impact on performance for the kit's targeted buyers, but the chassis is not as stiff as that of the "standard" MP-6.

• **SUSPENSION/STEERING.** Chunky A-arms are fitted to both ends of the car and are linked to the hubs by hinge pins. Cast steering knuckles pivot on bushed kingpins, and interchangeable brackets for the arms' inboard hinge pins allow front caster and rear toe-in to be adjusted. The Sports' aluminum shocks are similar to those supplied

with the other versions of the MP-6; they feature a top-filled, bladder design with bottom-loaded seals held by wire clips. The shocks have a bright blue-anodized finish and flanges machined into the shock body. Other versions of the MP-6 include rubber shock boots that pop over the flanges to prevent contamination of the seals, but the boots are not included with the Sports. Bummer.

A bellcrank steering system with a bushed, aluminum-plate drag link is linked to the steering arms via threaded tie rods. A servo-saver is built into the system, which operates smoothly on metal bushings.

• **DRIVE TRAIN.** The Sports follows the standard 1/8-scale buggy layout; the engine spins a spur gear mounted on a center differential, which is linked to front and rear diffs via dogbones. Likewise, the front and rear diffs transfer power to the axles through dogbones. All three grease-filled diffs house metal bevel gears within their plastic diff cases and feature cast ring and pinion gears. The spur gear is plastic but should be sufficiently durable, thanks to its thickness and the GS21R mill's relatively

mild output (compared to full-race .21 engines). Shielded ball bearings outfit every moving joint on the Sports, with the exception of the bellcranks and steering pivots.

building & setup tips

Since the MP-6 Sports arrives with the drive train and engine installed, the greasy job of assembling the kit's three diffs has been done for you, and the hassle of setting the gear mesh has been taken care of. That still leaves quite a bit of building, but the Sports is an easy build. These are the only sticking points I found:

■ **Step 4.** The illustration shows the rear inboard hinge pins being inserted from the front of the gearbox. This cannot be done on the engine side of the chassis without removing the engine, so ignore the illustration and simply slide the pins in from the back of the gearbox.

■ **Step 5.** When you assemble the kit's threaded camber rods, adjust them so they're 1mm shorter than the instructions suggest; I found the stock settings to be a bit off, and it's a pain to adjust the rods after assembly.

■ **Step 14.** Here, the manual calls for the steering bellcranks to be installed on the chassis before the pivot balls for the tie rods are installed on the bellcranks. Do yourself a favor: install the pivot balls before the 'cranks are in the car!

■ **Step 15.** The Sports includes a cheesy air filter that requires the

foam element to be rubber-cemented to its mounting flange. I followed the suggestion, and the filter soon parted company with the flange. I "fixed" this by installing an aluminum OFNA filter base and element after the Kyosho element had been lost on the track, but you can avoid this if you spread a bead of Shoe-Goo around the foam element/rubber flange joint.

■ **Step 17.** I'm not big on built-in primer buttons on fuel tanks, but the Sports' remotely mounted, rubber bulb-type primer is very effective. Unfortunately, a single screw secures it to the side of the fuel tank, close to the clutch bell. On my car, for example, this allowed the primer to wander into the clutch bell as it pivoted on its single mounting screw, and the clutch bell instantly snatched the fuel tubing from the primer when it made contact. A well-placed zip-tie would have prevented the problem.

TEST SETUP

I used the factory settings, right down to the included green shock oil. Although the car felt a bit "soft," it hooked up well on the bumpy test track. If you just want to play with the car, don't worry about changing a thing.

you'll need

- 2-channel radio system with receiver (FM preferred).
- Receiver pack.
- Two high-torque servos.
- Fuel.
- Fuel bottle (highly recommended).
- Glow-plug igniter.
- Extra glow plugs.
- Polycarbonate-compatible paint.
- CA glue.
- Thread-locking compound.

factory options

- 43-tooth hard-drive bevel gear—part no. IF-20.
- 13-tooth hard-drive bevel pinion—IF-21.
- Transponder holder—IF-57.
- Turnbuckle tie rod—IF-W2.
- Steel main gear—IF-W3.
- Aluminum center diff mount—IFW-8.
- Aluminum rear suspension holders (1 1/2" toe-in)—IFW-18/IFW-17.
- 3-piece flywheel—IFW-51.
- 3-piece clutch shoe—IFW-52.
- Aluminum radio-post set—IFW-56.
- Engine mount for O.S., Picco, NovaRosal, etc.—BSW-51.

test gear

• **Hitec® coreless servos.** An 1/8-scale buggy requires heavy-duty steering and throttle servos; "standard" jobs just won't cut it. I decided to try Hitec's new coreless models and installed an HS-945MG "High Torque" servo to handle steering

and an HS-925MG "High Speed" to yank the throttle/brake linkage. The 945 delivers a claimed .16-second transit time with 122 oz.-in. of torque, and the 925 swings through its travel range in just .11 second with 83 oz.-in. of grunt—and that's at 4.8 volts! Since I was running a 6V receiver pack, the servos no doubt had even more

speed and strength than Hitec specifies. The abuse of three qualifiers and a 20-minute Main didn't faze the servos' coreless motors (popular wisdom says that coreless servos are fragile; these aren't), and their quick transit times and high torque helped the MP-6 perform its best.

• **JR Racing® R-1 transmitter and receiver.** There are plenty of good reasons to put this comfy, full-featured transmitter into a machine such as the Sports, but the number-one reason was its PCM capability. I didn't want any radio trouble to goof up my race day—I can goof it up all by myself, thank you very much—and PCM is the most reliable signal there is. Not a glitch all day, my friends.

• **KO Propo® 6V, 600mAh receiver pack.** I used KO's KRO.6AR-5 pack, which stacks 5 cells like a pyramid for a perfect fit in the Inferno's molded radio box. Run time was a bit short with the thirsty Hitec servos, but that's not unusual for a 600mAh pack.

• **OFNA Racing® aluminum air filter base and foam element.** I didn't intend to swap out the stock filter, but when it bounced out of the car into never-never land, I had no choice! I robbed the sweet, blue-anodized OFNA setup from assistant editor Greg Vogel with a Jedi mind trick: "Greg, you don't need this filter"



TRACKTEST Kyosho Inferno MP-6 Sports

The center diff is home to the Sports' brake system, which devotes a single, vented, steel disc and padded caliper to each end of the car. The front and rear brake linkages are independently adjustable via clamping collars on the brake rods, and the stock springs seem stout enough to avoid the need for replacement with sections of fuel tubing.

• **WHEELS AND TIRES.** Attractive, 5-spoke rims and mini-pin tires grace the corners of the Sports. The kit tires look grippy but have relatively soft carcasses that would benefit from foam inserts that, unfortunately, are not included. In the interests of a stock test, I glued the tires to the rim minus inserts, but I encourage you to spend a few bucks on inserts when you build your own kit.

• **BODY AND WING.** The Sports includes the same shapely shell as the rest of the MP-6 line, and the wing is also identical except for its baby-blue color. To get the body to fit properly, I had to cut a hole on the left side of the shell to allow the screw boss on top of the pipe to poke through. Otherwise, the body is a trim-and-install affair.

• **ENGINE AND ACCESSORIES.** With its blue-anod head, the included GS21R engine is a good-looking powerplant with some interesting features, including a bushed connecting rod, bolt-on manifold, pull-starter and composite, 2-needle, slide carburetor. The engine is bolted directly to the chassis through cast-in mounts; this means you'll have to purchase engine mounts if you want to install another type of engine down the road.

The bolt-on manifold does not make a bend to reach the pipe; instead, a silicone "elbow" couples them. The pipe itself is a three-piece affair with a deep convergence cone and an O-ring seal between the cast pipe halves. The pressure nipple is cast-in, which means you can skip the hassle of using JB Weld to attach a pressure nipple to the pipe.

To fuel the system, the Sports uses a standard-issue, MP-6 fuel tank with cap-mounted pressure fitting. A remote primer bulb is also included and works well—much better than integral piston-type primers.

IS THIS WHY THEY CALL IT "INFERNO"?

run effectively without its running very hot (more than 350 degrees). Just as I had the weekend before, I let it run hot, but this time, I smoked it. I got through two qualifiers before the piston and sleeve were toast.

After completing the event with an O.S.* RG (I won the B-main, and if you were there, you know why that's funny), I returned to the workshop and robbed another GS21R from a Kyosho LandMax. I bolted it into the Sports to see if it ran equally hot; it did. Even when I ran other pipes and added more lube to the fuel, the engine simply would not perform without cooking up past 350 degrees. The good news is that as long as you let the engine cool between runs and run it on the rich side, it seems to tolerate the heat very well. The bad news? You really can't race this engine without replacing the piston and sleeve every weekend—or at least, every other weekend. The trouble seems to stem from the Kyosho heat-sink head, which does not offer as much cooling area as the heads that are included with other brands. Unfortunately, I could not locate any aftermarket heads for the GS21R, so the race solution will have to be another engine.

My advice is this: if racing is your goal, get a standard MP-6 and buy an engine separately. You'll get the additional features the "Sports" version omits, and you won't be paying for the Kyosho engine. If all you want to do is play, the stock GS21R engine should hold up as long as you take it easy, run well-lubed fuels (O'Donnell's and Trinity* are good bets), and keep the engine a bit rich. In the meantime, Kyosho is working on a fix for the problem. I'll keep you posted.

After completing the "Performance" section of this review, I returned to RC Madness for the gas regional championship and competed once again with the GS21R engine. Despite the best efforts of successful nitro tuners who go a season or more on one piston and sleeve, we could not get the engine to

PERFORMANCE

If you want to run 1/8 scale in Connecticut, RC Madness in Enfield is the place to do it, and that's where the MP-6 Sports was headed on its first trip with a transponder. It was to be my first time on a race-track with a big buggy; although I've played with 1/8-scale machines, I had never raced one "for real."

I picked quite a weekend for my first race; in preparation for the upcoming regional championship, track owner Chris Marcy had constructed the most technical layout I've ever seen, and I knew right away that it would take real skill (and some good luck) to be competitive on the tight, twisting track. There were deeply off-camber turns, washboard corners, a set of triple-X jumps, drop-off jumps, a quad section and bumps everywhere. A single back straight allowed the cars to open up, but a light touch on the trigger and a capable brake finger were required to negotiate the rest of the track.

I found that the car handled much more precisely than I expected, given its heft and soft suspension. The Sports did seem to roll a bit in tight turns, but it stayed planted and held its line no matter how bumpy the track. It did suffer when braking before entering turns, but that was my fault: I had dialed in too much front-brake bias, and hard braking locked the front wheels and caused the car to push; it was nothing a 10-second adjustment couldn't fix.

The technical track required the cars to get airborne often, and this was no problem for the Sports; to be fair, most big buggies make good jumpers, simply because they are heavy, 4WD machines with plenty of gyro action from the wheels. Even if it isn't a unique trait, it is worth mentioning that the Sports is a great jumper. If you're buying one for play, be prepared for the best flight time you've ever had.

Now, a few words about the GS21R engine. Make that exactly three words: it runs hot. *Very* hot. After the first qualifier, my pit lackey, Rob "Knob" Allgeyer, simply said, "Smell this thing," and I inhaled the acrid aroma of fried castor oil and overheated aluminum. Greg ran up with his Exergen temp gun and clicked off a reading of 354 degrees—smokin'. Although the car ran perfectly well, we felt it had to be too lean if it was getting that hot. But after fattening up the low and high needles in various combinations, we found there was no way to get the engine to operate at a "safe" temperature without making it run like a pig. I decided to lean it back out and let it rip. I just wanted to have the best possible race—piston and sleeve be damned! The engine continued to run red-hot through two more qualifiers, and after each, I removed the head to inspect the pinion and sleeve. Everything looked fine, and when the parts cooled, there was still a good seal at top dead center.

Time for the A-main. The seemingly inevitable first-turn pileup collected the fastest cars, but my slower buggy arrived just in time to steer around the melee for a spot in the top half of the field. After about three laps, my car's exhaust note suddenly changed to a sharp crackle, and I knew the silicone coupler had slipped off the manifold. I continued to race but expected the engine to quit soon, since there was no exhaust to pressurize the fuel tank. Although it sounded like junk, and the engine made usable power only in a very narrow rpm range, it ran the entire 20-minute Main. I was happy to know that the engine was so reliable and even happier to learn I had finished third!

THE VERDICT

Wow, I'm totally stoked on 1/8 scale. The MP-6 Sports shatters the myth that 1/8 nitro buggies are strictly for experts. Granted, I wouldn't call this an ideal first car, but as a second nitro vehicle (or first, if you've truly mastered electrics), it's a great fit. Unfortunately, the GS21R's "smoking problem" mars an otherwise excellent car. See "Is this why they call it 'Inferno'?" for the full story, and keep your fingers crossed for an improved heat-sink head (or another fix) from Kyosho.

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

The MILLENNIUM

What's next for RC?

by Peter Vieira

As the final days of 1999 tick away, we can't help but compare the futures we've imagined with the future we've arrived at.

Arthur C. Clarke foresaw that in 2001, people would travel to the moon as casually as we might now travel to Cincinnati, and he envisioned a sentient computer named HAL leading astronauts to mankind's first contact with an extraterrestrial race. Fashion futurists believed transparent plastic and glittering metallic fabrics would replace pedestrian cloths such as cotton. Automobile designers of the 1950s figured we would be traveling in atomic-powered, bubble-top dream machines by now. And yet, here we stand with nary a silver lamé jumpsuit in sight, barely able to reach earth orbit, tapping away at computers that are no more self-aware than a rock, still putt-putting around in vehicles powered by dead dinosaur juice.

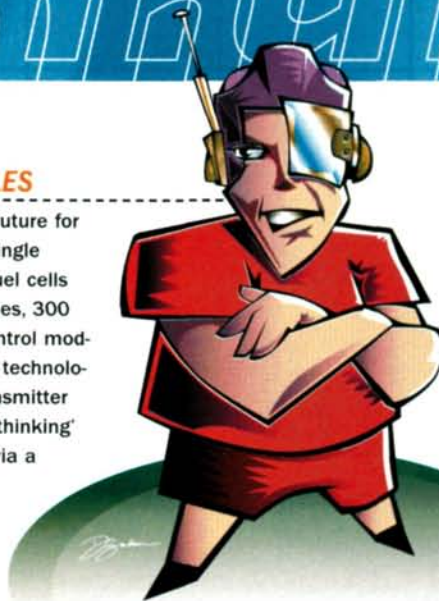
But then, who could have predicted ATM machines, or the Internet? No one foresaw Hot Pockets, or Tamagotchi pets, or compact disc players. The future remains enigmatic, but that will never dampen our enthusiasm for imagining it—for trying to guess the things that are yet to be. When we play the "What's next?" game, we can't help but wonder what the future holds for our hobby, for RC is dependent on technology and is therefore certain to benefit from and expand with the technologies of tomorrow.

For a speculative look at futures both plausible and fantastic, we've conjured up our own ideas and collected the thoughts of the industry's brightest minds. Will these ideas age well? Time, as it always does, will tell.

■ TEAM NOVAK

MIND-CONTROL MODULES

"We at Novak see an exciting future for RC cars, including ESCs on a single chip, self-healing electronics, fuel cells to replace rechargeable batteries, 300 oz.-in. miniservos and mind-control modules based on neuron network technology, thereby eliminating the transmitter as we know it today. Imagine 'thinking' your vehicle around the track via a simple helmet module as opposed to physically holding a transmitter to drive it. Some far-out features in the helmet module would include a heads-up display showing fuel-cell voltage, current, motor rpm, fuel-cell temperature, tire temperature, tire size, motor temperature, vehicle G-loading, acceleration, deceleration, speed, lap times, race clock and race position. Alas! If only we had a crystal ball!"



ILLUSTRATIONS BY DAVID BAKER

■ SHAWN IRELAND, HPI

ACTIVE GROUND EFFECTS

"With the Cold War long over, there are more and more materials from the aerospace industry coming into common use. Look at the leap in performance we've seen in the last 10 years; I think cars will improve even more dramatically with new, stronger, lighter plastics, and the cars could incorporate new control systems; imagine active ground effects that would use fans to suck the car to the track in the turns or use lift to alter brake bias or front-to-rear traction, or help the car float over jumps."



and BEYOND

■ GIL LOSI JR., TEAM LOSI GRASSROOTS FACTORY SUPPORT

"I hope the future will bring greater manufacturer support of the local racing scene instead of the concentration on national events and factory teams that we see now. We need to support the average RC racers out there and grow the sport by finding better ways to distribute information and get tracks together. We should be spreading the word to would-be track operators on how to get started, how to get land from their state's parks department and so on. There will always be a place for 'big-time' RC racing, but it needs to be separated from the grass-roots racers; I'd love to see a separate factory class, with a limited number of events used to crown a national champion. Non-sponsored drivers would shoot for their own regional titles that would qualify them for a national title."



■ MIKE MAYBERRY, HITEC SUPER-COMPUTER RADIOS

"Look at the graphics you get on a Game Boy Color or LCD television, and imagine having that technology on your computer radio. The software could be more computer-like, with pull-down menus and a touchpad to control an on-screen cursor. Between heats, you could play video games on the radio, using the wheel and trigger for control. How cool would it be to play *Gran Turismo* on your radio? An adapter could be included to allow the use of the radio as a video-game peripheral, and of course, there would be a means of downloading setups to disc."

"The software could be more computer-like, with pull-down menus and a touchpad to control an on-screen cursor."



■ DALE EPP, PROTOFORM DRIVE-BY-EYE SYSTEM

"The top-of-the-line cameras now have technology to sense where your eyes are looking, and they focus based on that. I'd love to see that technology brought to RC; you'd slip on special microprocessor-equipped sunglasses that would be linked to a pocket-size transmitter. The glasses would track your pupils and drive the car wherever you looked. The system could also have a heads-up display that would pop up to make adjustments to the transmitter settings. I think that would be really cool."



■ MIKE OGLE, DRAG-RACING INSIDER CAPACITOR DISCHARGE POWER

"I think we'll see drag cars getting below the 1-second mark in a scale quartermile, thanks to capacitor power; instead of a battery, there will be a single, lightweight capacitor that delivers a 2-second, high-amperage blast. With the speeds these cars will reach, aerodynamics will be critical. Active wings could be used to provide maximum downforce on launch, then flatten out as the car accelerates, then pop up to function as air brakes at the end of the run. The cars could even be laser guided: an onboard sensor would automatically correct the steering if the car deviated from the beam."



TODD MATSON, PRO-LINE
ADJUSTABLE TIRE COMPOUNDS

"I doubt this would ever really happen, but what if we could cook up a new tire compound that was electronically tunable? As you passed voltage through it, it would get harder or softer depending on the voltage. A third channel on the radio would control an onboard module that regulated the tire voltage, so you could dial in more traction as you drove."

The rims would have conductive plating, and the current would be transmitted through the axles via a copper brush that rides on the outriggers."

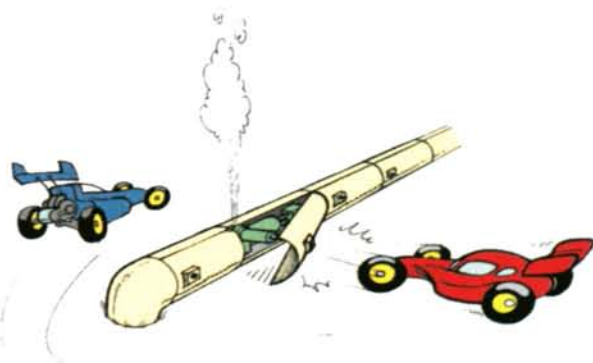
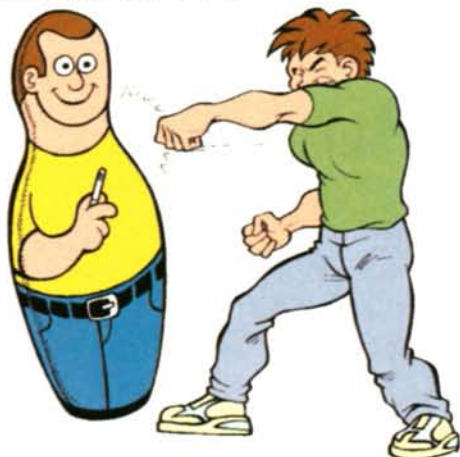
"You could dial in more traction as you drove."

FUTURE HISTORY

In the December 1999 issue, we took a look back at the century that spawned RC. We thought it would be fun to "look back" on a past that has yet to pass. Here are some "future" innovations as they might appear in *Radio Control Car and Repulsorcraft Action's* end-of-the-century December 2099 issue.

ACME NOVELTIES CORNER MARSHAL BOP-BAG

Still popular today, the inflatable corner marshal has helped us all settle down after a trying qualifier. The first models were silent, but second-generation inflatables featured microchip recordings that allowed the "marshals" to utter such phrases as "I thought you'd finished," "Sorry about stepping on your car" and "I would've got you sooner, but I was lighting a cigarette." The speaking models had to be constructed of particularly heavy-gauge vinyl because drivers tended to hit them harder.



PNEUMASPORT INDUSTRIES SMARTRACK

The SmarTrack used optical sensors to detect a car that was stuck on the boards then used a pneumatic ram to push it off the board and back into the action. The concept worked, but substandard pressure valves used to keep costs down caused the pneumatic rams to operate with too much force, often launching cars off the track. Even when the SmarTrack operated properly, the system's inability to sense the traffic situation on the track often caused it to push cars directly into oncoming vehicles. PneumaSport soon faded into oblivion.

ILLUSTRATIONS BY PETER VEDRA

2005

2022

"Active suspension with variable, computer-controlled damping could become a reality."

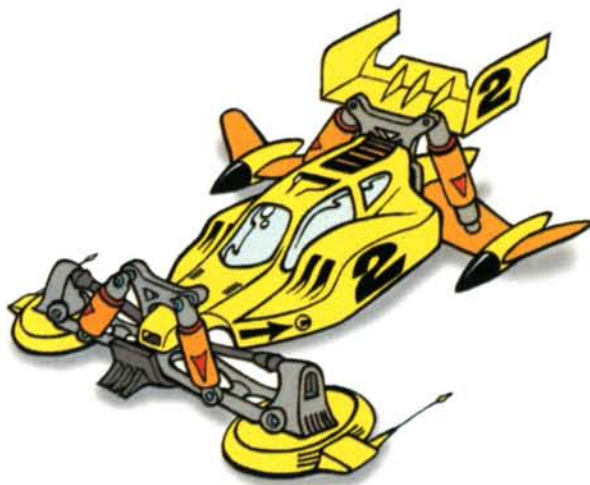
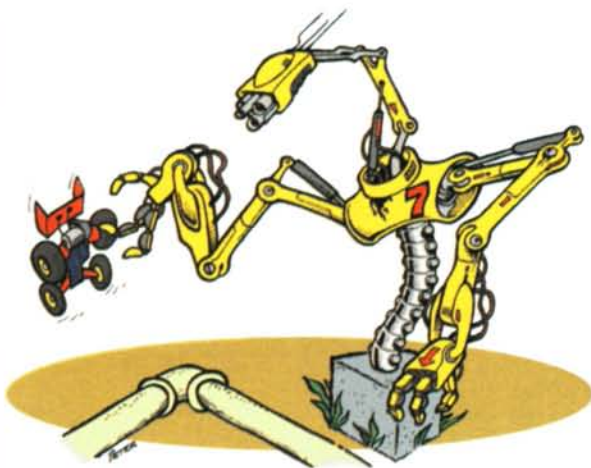
■ **CLIFF LETT, TEAM ASSOCIATED**
ELECTRONIC SUSPENSION CONTROL

"ESCs keep getting smaller as transistors and conductors improve, so there will be more room in the cars for other electronic controls. Active suspension with variable, computer-controlled damping could become a reality, and piezoelectric gyros could be incorporated to help the cars self-correct. Electronic telemetry systems linked to the drivers' radios could dramatically increase the information we get to design the cars. With telemetry, we'd be able to see what input the driver made at the controls and then correlate it to the car's reaction to see how effective the setup was."



ROBOCO
CORNERBOT MK. VII

Roboco offered modified versions of its pick-and-place robots to track operators as tireless corner marshals who never tripped, fumbled, or put down cars on the wrong side of the pipe. Initially welcomed by drivers, the CornerBot eventually lost favor because drivers could no longer blame their poor finishes on bad marshaling. That was not the end of the line for the Mk. VII chassis, however; it lives on in fast-food franchises as the BurgerBot 750, the industry's number-one sandwich-assembly automaton.



REPULSOR-LIFT TECHNOLOGY

Much to the chagrin of tire makers, repulsor-lift technology came into its own in the last quarter of the 21st century, eliminating the need for vehicles to physically make contact with the road. The zero-emissions repulsorcraft were expensive to buy but ultimately cheaper to operate, as they escaped the heavy taxes levied against fuel-burning cars, not to mention the high cost of fuel itself. Tamiya was first to offer functioning scale models of repulsor-lift vehicles and released 1/10-scale versions of the Toyota Floata and Honda Plush on the new TA-95RL chassis. Racers soon discovered these cars, and a new class of RC was born. ■

2050

2080

Reader's Rides of the Year

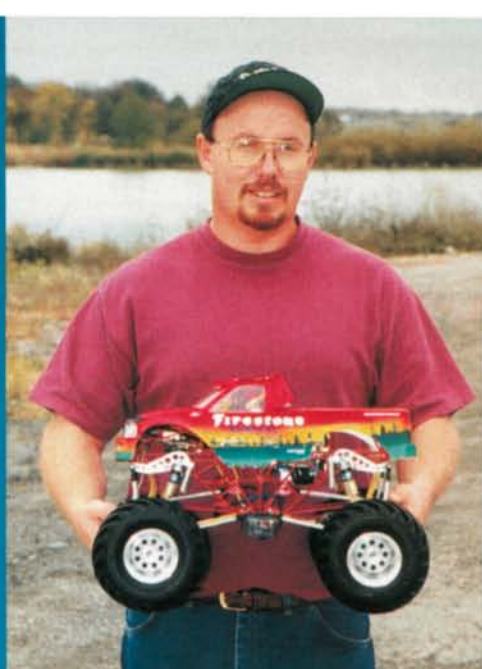
by Kevin Hetmanski

Every year, we are bombarded by tons of mail filled with great-looking photos of readers' cars and trucks. We have a hard enough time picking the photos for each issue of Radio Control Car Action, so you can imagine how difficult it is to select just one machine to be named Reader's Ride of the Year.

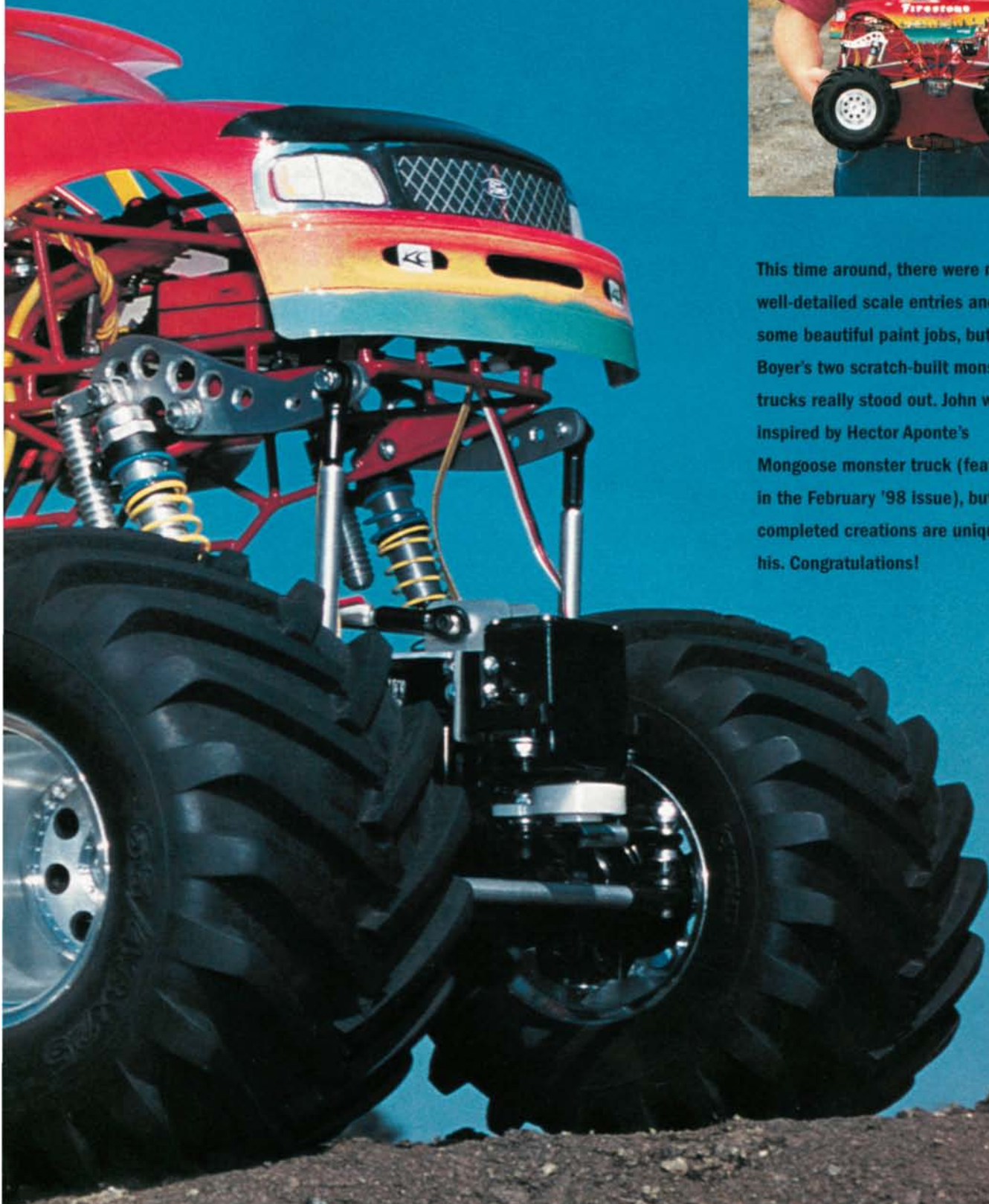


PHOTO BY DAVID SIKES

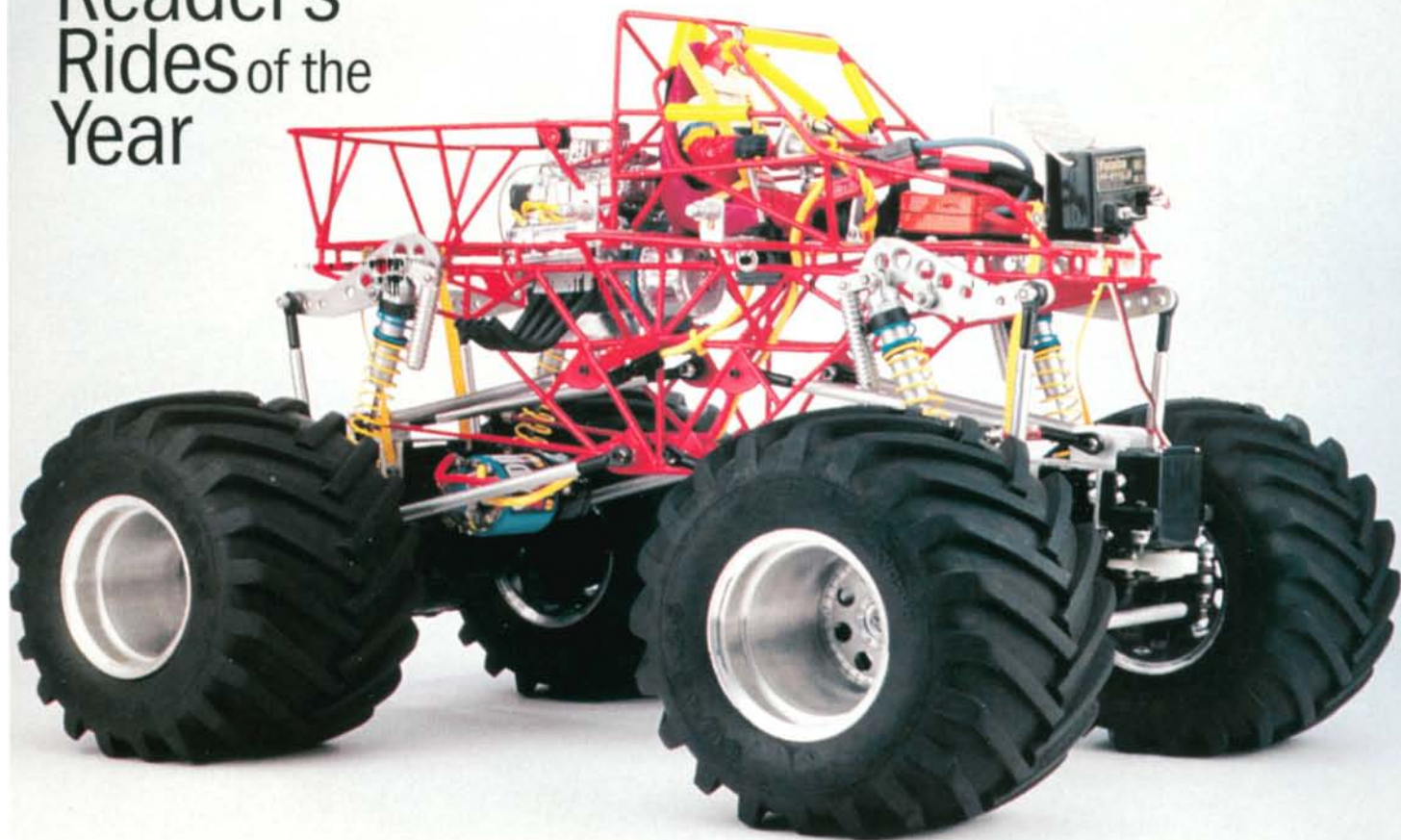
*Not only did
John win
Reader's Ride of
the Year, but he
took first place
in concours at
the NR/CTPA
worlds!*



This time around, there were many well-detailed scale entries and some beautiful paint jobs, but John Boyer's two scratch-built monster trucks really stood out. John was inspired by Hector Aponte's Mongoose monster truck (featured in the February '98 Issue), but the completed creations are uniquely his. Congratulations!



Reader's Rides of the Year



SPECIFICATIONS

Overall length: 19 in. (482mm)
Overall width: 15.5 in. (394mm)
Suspension travel: 2 in. (51mm)
Motor: (2) Trinity 17-turn Sapphire
ESC: Novak 410
Radio: Futaba Magnum Junior
Servos: Futaba S9303
Batteries: Sayno 1700
Chassis material: music wire

Time to build: "I'd say I spent about 140 hours total over a four-month period."

Total cost: "With my time, I wouldn't part with it for less than \$1,500."

Hardest thing to do: "The frame, because I didn't have a CAD system to lay out the pieces."

HOW HE BUILT IT

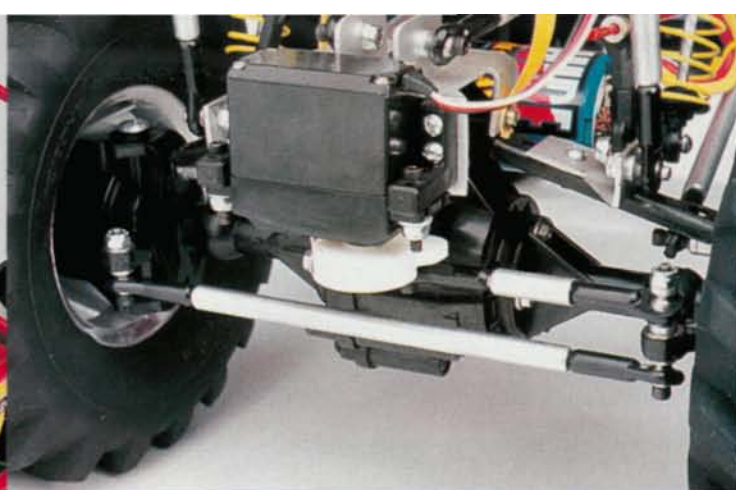
• **CHASSIS.** To construct the frame for the Firestone Wilderness truck, John brazed together pieces bent from $\frac{1}{8}$ -inch solid steel music wire and ultimately used up 36 feet of the stuff! The solid steel wire is incredibly strong, and the brass brazing is many times stronger than solder. This combination ensures a nearly indestructible chassis and roll cage. When the construction was complete, the chassis was covered with two coats of Krylon red paint.

• **SUSPENSION.** Two Tamiya Clod Buster gearboxes get this monster rolling, and a four-link suspension attaches the gearboxes to the frame. The ladder bars are constructed of $\frac{1}{4}$ -inch-aluminum round stock with Rocket City* ball ends. The two upper links run from the frame to the center of each gearbox—similar to those on full-size monster trucks. To help keep the chassis upright, a swaybar made of $\frac{3}{32}$ -inch music wire was incorporated into the design.

The truck's ball-bearing-supported cantilevers were handcut out of flat aluminum stock, which John drilled out to lighten and make look trick. Associated* shocks stripped of their anodizing sus-



These custom-made cantilevers are hand-cut out of aluminum, and they pivot on small ball bearings. Note the dual-stage springs.



Above left: Parma's Hemi engine kit really adds life to this monster. All the wiring is included, but John definitely gets bonus points for the authentic draping job.

Above: a custom steering bracket mounts the servo high up on the front gearbox, out of harm's way. John made the linkages from aluminum round stock. Beef-e.

Left: check out the detailed driver's compartment. The steering wheel is made from a solid piece of aluminum, and the roll-cage padding is actually rubber tubing covered in MonoKote. Sorry, no cup holders.



pend the big machine. John made two-stage springs by using one normal-length spring and a stiffer spring that he shortened. For a more realistic look, he added dummy reservoirs to the shocks.

- **STEERING.** John decided to use two-wheel rather than four-wheel steering on his truck. To lock out the rear steering, John attached a rod from the outer hub to the custom steering-servo/four-link mounting bracket. The servo-mounting brackets were also cut out of aluminum stock. A Futaba S9303 servo up front keeps the wheels pointed in the right direction.

- **DETAILS.** John definitely didn't skimp in this department; the chassis and roll cage have all kinds of cool details: elastic limiting straps are between the gearbox and the chassis; a dashboard bent from aluminum stock has a set of gauges, lights and a handcut aluminum steering wheel; the shifter is a toggle switch with a craft bead glued to the top of it; the driver is an action figure from the local toy store (he's seeing some *real* action now!); his plastic butt is strapped into the seat with a realistic-looking five-point harness). Like so many other scale RC projects, the driver's seat is from a Parma small-block Chevy

kit, but John went the extra mile and "upholstered" his with vinyl. Rubber tubing covered with MonoKote* simulates the roll-cage padding, and Parma's standard-issue Hemi engine does the usual excellent job of providing a realistic powerplant.

- **BODY.** Topping off John's creation is a Parma* Bigfoot body that he painted himself. He left the bed clear to show off his engine and chassis work. Chrome MonoKote recreates the chrome grill of the real truck, and John handcut the Firestone Wilderness stickers also out of MonoKote. He also custom-made adjustable body mounts for the frame.

- **OTHER STUFF.** John chose a Futaba* Magnum Jr. radio to guide his truck over anything that gets in its way. A Novak* speed control sends the power to the two Trinity* Sapphire modified motors. Nitro USA-1* wheels and tires round out the package. The rims use special adapters made by Hooter Chassis and Hobbies* to make them fit on Clod Buster axles.

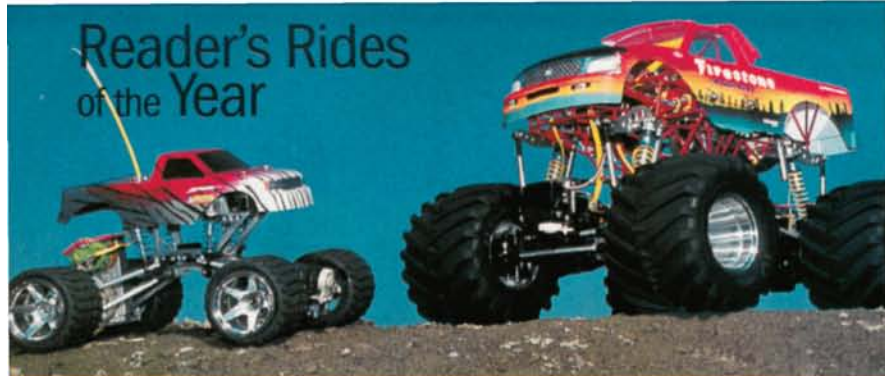
DURATRAX

Don Pardo, tell him what he's won! John Boyer will receive a \$500 gift certificate from DuraTrax*, good for all sorts of



DuraTrax goodies such as Red Alert fuel, Streak, Blast and Spike ESCs, tires, tools—anything DuraTrax! John could even score one of DuraTrax's RTR "Maximum" vehicles or the awesome Quake monster truck! Congratulations, John; you earned it.

Reader's Rides of the Year



Mini Monster Specifications

Overall length: 11 in. (279mm)
Overall width: 8 in. (203mm)
Suspension travel: 3 in. (76mm)
Motor: Trinity Green Machine 2
ESC: Novak 610R
Radio: Futaba Magnum Junior
Servos: Futaba S148
Batteries: Sayno 1400
Chassis material: 2-inch-square stock aluminum

Time to build: "About 60 hours, over a two-month period."

Total cost: "It's really a 'spare-parts' truck, so it comes down to the time I spent; \$700 sounds right."

Hardest thing to do: "The rear gearbox was tough to get right. It's just sections of L-channel—not the best stuff for precise work. It took some effort to get everything lined up and smooth, but I got it working pretty well."

What do you plan to build next?

"I plan to build a 1/32-scale Virginia Giant monster. I want to design a more scale-looking suspension for this little guy, though."

Mini Monster

John's Firestone Wilderness truck is impressive, but the "little guy" seemed to get the most attention from the editors! This trick little machine works just like any other monster truck, but it's small enough to be driven around the house.

The chassis was made from a section of 2x2-inch-square aluminum tube, and large cutouts in the sides give it the look of a tube frame. Like its big brother, this mini monster's aluminum chassis is bolted to a four-link suspension with swaybar. Short Associated* shocks provide the damping and provide mega travel, thanks to their inboard mounting.

The rear gearbox was built from Tamiya* Grasshopper transmission parts; L-channel supports form the open gearbox; the front axle is a piece of C-channel aluminum, with spindles from an Associated RC10.

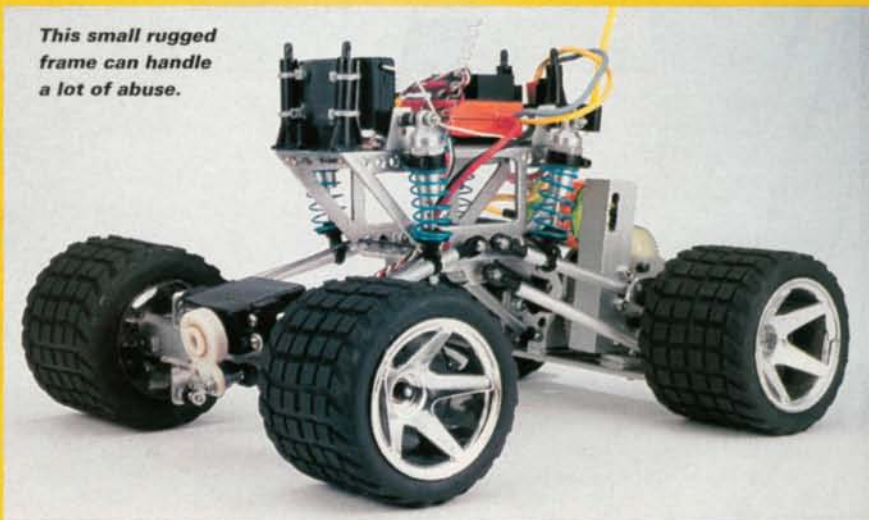
Not a lot of space to work with, but John was able to squeeze everything in.



Grass-hopper guts make up the drive train.

The front end is completely scratch-built from different types of aluminum stock.

This small rugged frame can handle a lot of abuse.



There are even adjustable steering stops on each side of the front assembly that prevent the wheels from going too far when turning.

A BRP* 1/8-scale truck body painted by John brings the mini monster to life, and HPI* Super Star wheels and DuraTrax tires complete the rugged-looking rolling stock. To complete the project, John installed Futaba radio gear, a Novak speed control and a Trinity* Green Machine stock motor.

CONCLUSION

What else is there to say? John built two awesome trucks; the Mini Monster was a real hit around the office. That's why his two creations have been chosen Reader's

Rides of the Year. John will receive a \$500 gift certificate from DuraTrax, a Radio Control Car Action T-shirt, decals and a one-year subscription (or extension) to the mag. If you have built an awesome

"ride," please send us a picture. Perhaps your creation will be the next Reader's Ride of the Year!

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

Team Associated announces the winner of its “Name Our Touring Car” contest

Glen Gregorio of Los Angeles, CA, was the lucky winner of Team Associated’s “Name Our Touring Car” contest that was held exclusively on its website late last year. Glen came up with “TC3,” the name Team Associated ultimately chose for its recently released touring car. Glen was awarded the very first production TC3 kit to roll off the assembly line, and the kit box was autographed by Cliff Lett and Roger Curtis—the TC3’s designer and engineer, respectively. Glen is no doubt one happy modeler, as well illustrated by the photograph. Congratulations!



CVDs for your Traxxas Nitro 4 Tec

Attention, Traxxas Nitro 4 Tec and Nitro 4 Tec Pro racers: you’ll soon be able to equip your cars with world championship-winning MIP CVDs. You will be able to replace the stock, molded universal sliders with stronger, smoother MIP CVD axles. The kit will include a pair of heavy-duty steel outdrives to replace the plastic outdrive yokes and a pair of rebuildable, ultra-rugged CVD axles. Many national and world championship-winning factory team drivers rely on their MIP CVDs to provide smooth and reliable performance, and now Traxxas Nitro 4 Tec owners can, too.

Trinity and Team Losi sweep the Endless Summer Classic

The annual Pro-Line/RC Car Action Endless Summer Classic is always a highly anticipated event that draws the hottest drivers for some of the closest racing in RC. This year, more than 250 racers attended, but only two drivers dominated the Expert Stock and Expert Mod classes. Team Trinity/Team Losi factory driver Brian Kinwald earned the TQ designation in all three Mod classes (2WD, 4WD and Truck), then went on to easily win the Mains. Team Trinity/Team Losi driver Dave Mangelsdorf (aka “The Mangler”) followed suit and took the TQ and win in the 2WD Stock and Stock Truck classes. Congratulations to both of these drivers. You’ll be able to read all about their escapades at the Endless Summer Classic in the next issue of *RC Car Action*.



Trinity/Picco join forces

Trinity Products and Picco, a manufacturer of top-of-the-line world-championship-winning RC nitro engines from Italy, have joined forces to bring us new .12 and .15 engines for most popular 1/10 applications.

The new engines, the .12 and .15 RC Speed, feature true ABC construction, a two-piece cylinder head, slide or rotary carb, high-quality precision crank bearings, a crankcase that has a black finish for better heat dissipation and a unique exhaust port. It’s anticipated that both engines will feature a round exhaust port similar to those found on larger .21 engines. This design, which is currently ROAR-legal, is supposed to provide smoother, more consistent exhaust flow for greater power output. Both versions will be available with pull-starters for those of us who don’t want the added expense of starting equipment.

The .12 and .15 RC Speed engines are designed to fit the same engine mounts as those used on most popular small-block engines. A wide variety of special high-performance exhaust manifolds for the RC Speed engines will also be readily available to ensure maximum power output.

RACER TIP OF THE MONTH

■ Harry Roberts



Built-in transponder mounts are handy—as long as they allow you to get at the transponder easily! The HPI RS4 Pro 2 requires the transponder to be installed upside down, and this can make it difficult to install and remove the body clip that holds it in. You can ease transponder installation and removal by flipping the mount over. To make the mod, you’ll have to remove the upper deck and thread the front belt between the mount and the upper deck before you bolt everything back together. The new setup allows the transponder to be installed right-side up, so you don’t have to pluck out the body clip from between the ESC and transponder.



RACER news

INNOVATOR AT WORK

Andy

Jacobson

What do Masami Hirosaka, David Spashett, Mike Swauger and Joel Johnson have in common? They've all won world championships with the help of an Andy's R/C Products racing body. Andy's custom-painted bodies are extremely popular with club-level racers because the bodies look like those used by the top factory drivers, and they cost less than you would spend if you bought the body and painted it yourself. The Andy's Stratus body also won "Favorite Body" in *RC Car Action's* "Readers' Choice" awards; it's one of the hottest selling bodies of all time.

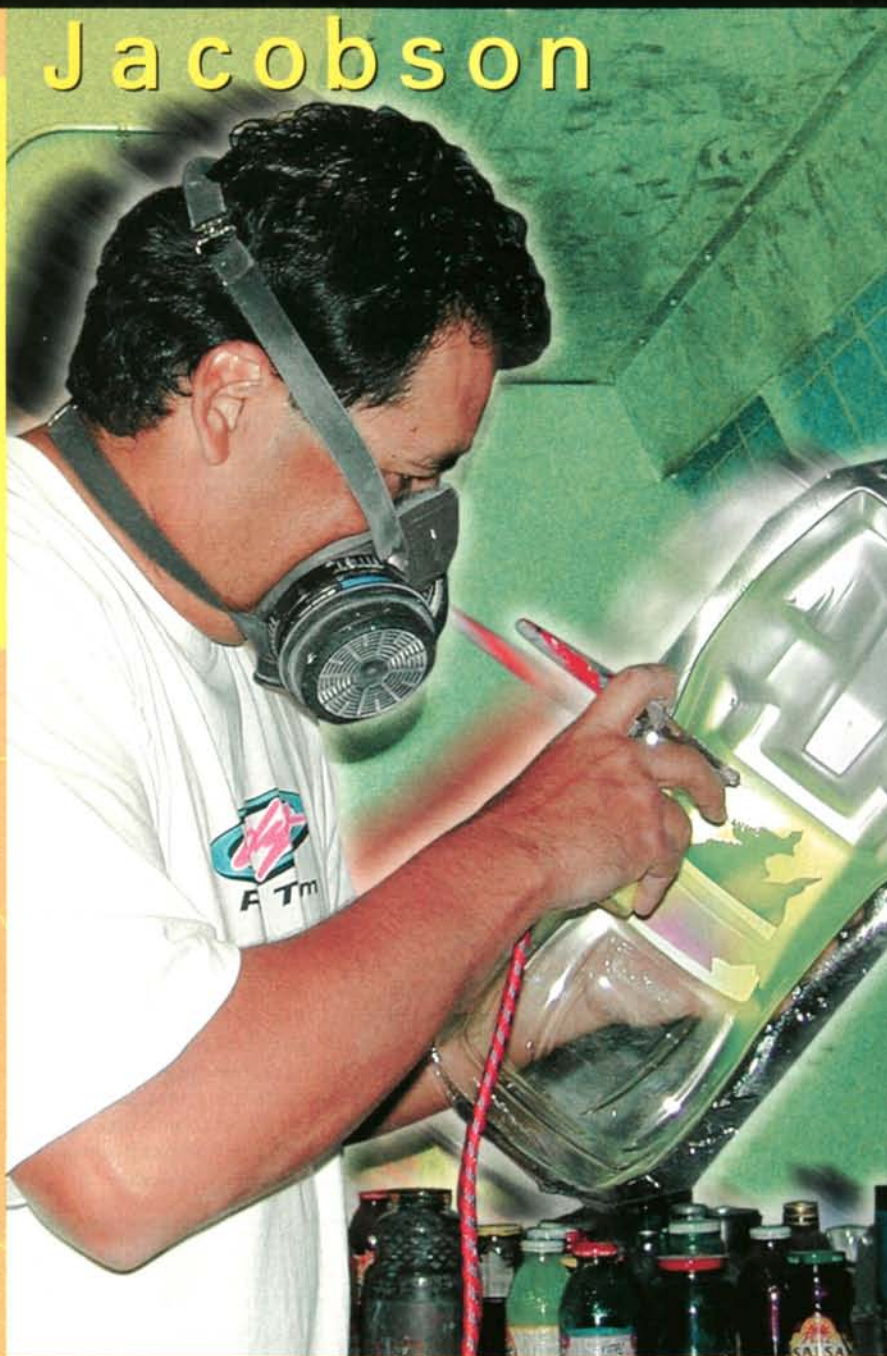
As it happens, Andy Jacobson is our guest "Innovator" this month, and that means you'll get a rare, behind-the-scenes look at Andy's R/C Products and find out about one of the RC industry's most popular mold makers.

Radio Control Car Action: Let's start off with some background. When was Andy's R/C first established, and what were some of your first products?

Andy Jacobson: I've been an RC fan for over 20 years. My first experience with RC cars was at the McCoy 1/8-scale On-Road Championships at the John Thorpe Raceway [future home of the Ranch Pit Stop in Pomona, CA] back in 1978. At that point, I decided that I had to have one of those cool RC cars. Because of my background in painting and pinstripping full-size cars, I quickly developed a flair for painting RC car bodies. Soon all my friends at the track wanted me to paint their cars' bodies too, so my hobby quickly grew into a business. While I was racing, I looked at the RC bodies that were available and started thinking about how to increase their performance and which other bodies might be fun to race. In 1987, Andy's R/C Products was established, and my first body was a Mercedes for dirt oval racing. It won the JG West Coast Dirt Oval Championships the first time out in competition. What a confidence builder!

RCCA: What led you to get involved in the RC business?

AJ: I enjoyed the idea of designing and painting RC bodies, but I didn't realize the potential until some time in the early 1980s, when



Gil Losi Sr. gave me the opportunity to paint bodies every Wednesday night at the Ranch Pit Shop. On race days, I would take orders to custom-paint bodies, and then my customers would pick up their bodies at the end of the race. This was very convenient for the racers,

and it allowed me to make enough money to purchase a vacuum-forming machine and rent a small shop where I could design and paint RC car bodies under the Andy's R/C Products banner.





RCCA: Where was your first shop?

AJ: In San Dimas, CA. I had one vacuum-forming machine and two employees—including myself! We worked many long hours to compete with the larger manufacturers and remain independent so we could make the bodies that I wanted to make.

RCCA: Where is your shop now, and how many people do you employ?

AJ: Our new shop is in Ontario, CA, not far from the original location. I now have six great employees.

RCCA: How did you develop your sculpting and mold-making skills?

AJ: When I was six or seven years old, my dad would bring home plastic car models for me to build. Plastic model building and detailing is actually one of my hobbies, and I still compete in static model national championships. Of course, I just couldn't paint and glue the car together; no, I had to *reshape* the body and manufacture parts that weren't included in the kit so the models would resemble the cars I saw racing at Ascot and the 60s Speedway, where I went with my dad on weekends. Later on, I learned more technical information about mold making when I worked at Hooker Headers.

RCCA: Where does your inspiration come from? How do you decide which bodies to mold next? Are your ideas or concepts at all related to full-scale racing?

AJ: Oh, definitely; I'm a racecar enthusiast. I love NASCAR, Touring, F1, CART, Drag and Sprint Car racing. Basically, I'm a fan of any vehicle that has four wheels and is raced in competition. I also rely on some of the top RC racers in the world, such as Mike Swauger, Ron Rossetti, Joel Johnson and Masami Hirotsuka, for input on future projects. Their information is extremely vital to the growth of my company and the direction that Andy's R/C Products takes.



Production line painting techniques help cut finishing time without cutting corners.

RCCA: How do you keep up with the great demand for custom painted Andy's R/C bodies?

AJ: The past two years have been the most exciting—and the most demanding. We've been running nonstop since Team Trinity/Team Losi driver David Spashett won the touring car IWC and the IFMAR Worlds with our Stratus and Saubers bodies. It's a great feeling! Custom-painted bodies have always been in great demand, which explains why so many other manufacturers are entering my area of specialty. I'm literally painting as fast as my airbrush will go to keep up with the demand, and I'm working on new tooling at the same time. As you can imagine, Andy's custom-painted bodies are available only in limited quantities. If I wanted to make a fast buck, I could mass-produce my bodies, but the quality would ultimately go down. My autograph goes on each and every custom-painted body that leaves our factory. This lets customers know that they have purchased a high-quality body with a high-quality paint job.

RCCA: How are your bodies designed, and how are they tested out in the field before the final production molds are completed?

AJ: Once I've decided on a particular body style, I start researching. Books and magazines are a good source of information, and I look for pictures of the car from as many different angles as possible. Then with a lot of wood and Bondo, and knowledge of RC aerodynamics, I create a body that has performance qualities, and I rely on some of the best drivers in the world to field-test my bodies and provide feedback before the body is ready for production. The body may undergo several makeovers before the public ever sees it.

RCCA: Do you keep track of all the championships that have been won with the help of an Andy's R/C body?

AJ: If I'm unable to attend the event myself, I keep in touch with racers to see how they did. The Andy's Stratus and Saubers are very successful and have won many club, regional, national and world championships. This proves that it doesn't take a big company—or paid drivers—to win championships. I'm very proud of the four world championships that my bodies have won.

RCCA: Do you have any new bodies in the works that you feel could become the next touring-car body of choice?

AJ: Although the Stratus is a hard act to follow, I have been developing a new Accord touring-car body that should generate some excitement in the industry. I have asked two world champions to field-test the body, and I'm



Jon Orr, Masami Hirotsuka, Masami's dad and Andy pose for the camera. Jon, Masami and other top drivers test for Andy's.

presently awaiting their feedback. The body won't be released until I'm certain it's world championship-ready.

RCCA: You're now molding bodies for the Traxxas Stampede; are you going to produce more bodies aimed toward the sport-level segment of the hobby?

AJ: Yes, this is something I have always wanted to do, but because of the demand for more race-oriented bodies, I haven't had the time. You can expect to see more sport-level bodies carrying the Andy's name in the future ... maybe more bodies for nitro-powered vehicles will be introduced. I'm also working on a truck body for the Team Associated RC10GT, a rally car body and more bodies for both electric and gas-powered Traxxas vehicles.

RCCA: Does Andy's R/C manufacture other products that our readers might not be aware of?

AJ: We will stick to designing and custom-painting bodies for the time being, but your readers might not know about all the OEM work Andy's R/C Products has done over the years, and continues to do. Andy's has pulled bodies for Yokomo, Team Losi, Team Associated, DuraTrax, Kyosho, OFNA, Trinity, Dynamite and others.

RCCA: Andy, what are some of your favorite activities? What do you like to do in your free time?

AJ: Anything that has to do with H₂O. I love the water. Whether it's taking my boat out on the river or the ocean to water-ski, fish, or just hang out with family and friends, I'm happy—as long as my VCR at home is taping any races that might be on. If I can't get near the water, I'm usually at the track, racing.

RCCA: Thanks, Andy. Keep making those cool bodies. ■



RACER news

Speed Shop

OFNA Tuned Pipe and Manifold for Tamiya TG10 Mk.1

OFNA Racing* has just released a tuned pipe and manifold set that's designed specifically for the Tamiya* TG10 Mk.1. Now you can replace the stock, model airplane-type canister muffler with a high-quality, two-stage tuned pipe and header system that should dramatically increase engine performance and reliability. The pipe and manifold also look great installed on the chassis because both pieces have a shiny polished finish. The pipe and manifold are sold together and include all the necessary fasteners and mounting hardware. The tuned pipe is also available separately.

TG10 pipe and manifold set—part no. 10074; \$46.95.



CEN's Silent but Deadly Tuned Pipe

Most dedicated nitro RC racers love the sound of a screaming nitro engine, but other folks within earshot may not find it as pleasing. If you race in a residential area that has a lot of fussy neighbors, CEN* makes a product you need to know about. Its new 12(B) Class Silencer for .12- and .15-size engines is designed to operate at a decibel level that is nearly 50 percent lower than that of the stock canister mufflers included with most nitro kits. The pipe features multiple silencing baffles and chambers that effectively reduce noise while retaining the benefits of a tuned-exhaust system.

The Silencer pipe features a polished finish and includes all the necessary mounting hardware and a silicone coupler.

CEN 12(B) Class Silencer—part no. NG70319; \$26.99.



New Gearing Options from HPI

HPI* has just released several new single- and 2-speed clutch bells and spur gears that allow racers to alter the gear ratios on their Nitro RS4, Nitro Mini RS4 and Super Nitro vehicles to suit a variety of tracks. The new 11- and 12-tooth, single-speed clutch bells are perfect for lowering the Super Nitro RS4's gear ratio for improved acceleration. If you plan to install one of the new clutch bells on the stock Nitro Star 15FE engine, you'll also need to purchase a set of HPI engine mounts (PN A693), so the engine can be mounted on the chassis' optional set of holes, which are not countersunk.

If your vehicle is equipped with an HPI 2-speed tranny, you'll be able to take advantage of several new gearing choices. The company's new 11/14- and 12/15-tooth, 2-speed clutch bells are designed for the Super Nitro RS4, while the 13/18- and 13/20-tooth, 2-speed clutch bells are perfect for the Nitro RS4 and Nitro Mini RS4. Keep in mind, however, that installing a 2-speed tranny and altering the gear ratios will require adjustable engine mounts on all HPI vehicles equipped with the company's Nitro Star 15FE engine that features built-in, non-adjustable engine mounts.

HPI also recently released a new,



heavy-duty first-gear adapter for its optional, 2-speed tranny, and the company also offers several new, first-gear spurs for the new adapter.

Many racers have had problems when their HPI 2-speed transmissions are subjected to the extreme power of some of today's racing engines. The new, heavy-duty first-gear adapter is basically a CNC-machined hub that houses the one-way bearing and attaches to the first-gear spur with a large C-clip. The adapter significantly strengthens the transmission and is designed for high-power applications. HPI has also released new 43-, 44- and 46-tooth first-gear spurs for the first-gear adapter; however, many of the company's existing second-gear spurs also fit the first-gear adapter because the first and second gears are now interchangeable.

Single-speed clutch bells—part nos. A811 (11-tooth), A812 (12-tooth); \$7.

2-speed clutch bells—A820 (11/14-tooth), A821 (12/15-tooth), A823 (13/16-tooth); \$12.

Heavy-duty first-gear adapter—A882; \$19.

First-gear spurs (1M adapter type)—76813 (43-tooth), 76814 (44-tooth), 76816 (46-tooth); \$4. ■





RACER news

RACER PROFILE

Tony Neisinger

Tony Neisinger is an IFMAR world champion and a national champion many times over; basically, the man is a legend in RC racing. He's also one of the hobby's premier drivers, a world traveler and one heck of a guy, as you will soon find out. I had a chance to chat with Tony at the ROAR On-Road National Championships; here's what he had to say.

VITAL SIGNS

Age: 38

Hometown: Riverside, CA

Occupation: warehouse technician for the Bergin Brunswig Co.

Years racing: 20

First RC car: Associated RC12E

Favorite racing class: Anything gas, 1/2 and electric touring

Favorite track: Little Indy in Kingman, AZ

Sponsors: Team Associated, Reedy, Kimbrough, LRP, Airtronics, Pro-Line and Protoform

Major victories: IFMAR 1/2-scale world champion in 1984-85, 1986-87 and 1992-93



Radio Control Car Action: There's no denying that you've had a successful racing career, Tony; what has kept you interested in RC racing for so many years?

TN: Ever since I can remember, I have wanted to race full-size racecars, but I could never afford to do it competitively. RC racing is the next best thing, and it satisfies my love of racing.

RCCA: What do you think are the biggest differences between racing today and racing back in the seventies, eighties and early nineties?

TN: Because the sport keeps getting more scientifically and technically complex, just as it does in real auto racing, it takes a lot more time to prepare the cars to handle and perform properly. Back when I first started, I could just charge up the batteries, throw the car down on the track and outdrive the competition. These days, winning is based much more on how the car is prepared, and who nails down the best setup, handling-wise, and who has the best batteries.

RCCA: When did you first discover RC cars?

TN: When I lived in Santa Maria, CA, a fellow I worked with was running a 1/2-scale electric RC car in the parking lot after work one day, and he asked me if I wanted to give it a try. Naturally, I accepted his offer, and he handed me a two-channel stick radio. It was fun, but what really got me hooked was when I found out that my friend raced the thing in weekly competitions against fifty other guys at a parking lot in the center of town. I went to check out the racing, and the very next day, I bought a used Associated 12E that included a brown Futaba "box radio," a stock motor, a GE 1200mAh battery pack and a charge cord. I painted and mounted a Corvette body and raced the car the very next week.

RCCA: What do you consider to be your most memorable RC racing experience?

TN: I am fortunate to have had many memorable RC racing experiences, but the one that stands out most is when I won my second world championship in Las Vegas; my closest family members, relatives and friends were cheering me on from the balcony behind the drivers' stand.

RCCA: Do you dream about winning another world championship title? What would you do if you did?

TN: The only thing I dream about is racing real racecars. If I were fortunate enough to win another Worlds, I would just thank all the people who helped make it possible, take some pictures, drink some

champagne and look forward to the next race, and I'd hope to make some more friends along the way.

RCCA: You compete in both gas and electric on-road racing events. Which do you prefer, and why?

TN: I prefer gas racing a great deal more than electric because of the longer races, pit stops and racing strategies that closely resemble those used in real automobile racing.

RCCA: At the ROAR On-Road Nats, I noticed that you were racing a 1/6-scale electric touring car. How do you like competing in the TC class? What are your overall driving impressions of the Team Associated TC3?

TN: That was actually the first time I had ever raced a 4WD touring car in competition. I really like the Touring class because the cars look and drive more like the real thing. The TC3 is easy to build and to adjust to a particular track. Also, the TC3's drive-train efficiency is unbelievably better than the belt-drive systems I have seen. I like the car a lot!

RCCA: How often do you practice, and how much time do you spend wrenching on your cars?

TN: Well, recently, because of family and work responsibilities, most of my wrenching and practice have been done at the actual event. I've been fortunate to have people from the Team Associated/Reedy camp help me prepare so I can be competitive at major racing events; I owe them a lot of thanks.

RCCA: Are you involved in any other hobbies or sports? What do you like to do when you don't have a transmitter in your hands?

TN: I love full-scale auto racing and attend almost all of the big racing events in California, Las Vegas, Phoenix and other short tracks out West. I enjoy—and have participated in—just about every sport there is, but when I have the time, I like to watch ice hockey and baseball the most. I also attend professional sporting events whenever I get the chance.

RCCA: What does the future hold for Tony Neisinger?

TN: Eventually, I would like the chance to race real racecars, just as a hobby or perhaps something more, but I will most likely always race RC cars.

RCCA: Good luck with your racing, Tony. I hope that you get to fulfill your dream of competing in full-scale auto racing. ■





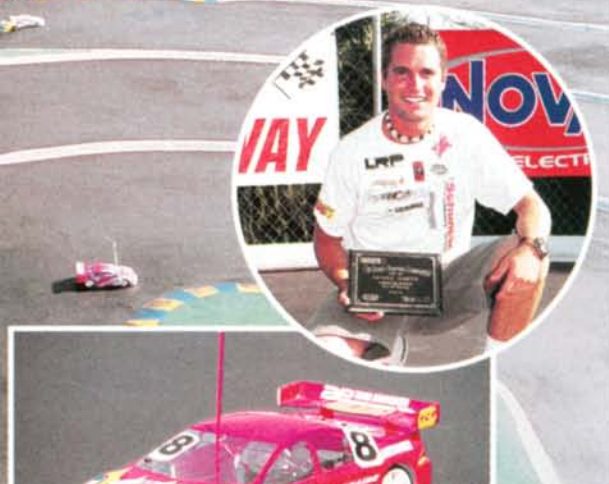
RACER news



The ROAR $\frac{1}{12}$ - and $\frac{1}{10}$ -scale Electric On-Road Nationals, held at Ripon RC Speedway this past summer, could have been called "the ROAR Touring-Car Nationals" because more than 80 percent of the attending racers signed up for the Touring classes. Attendance was low in the $\frac{1}{12}$ - and $\frac{1}{10}$ -scale classes, but the competition was extremely close because many of the world's best drivers were represented in the A-mains. Despite the fierce competition, the $\frac{1}{12}$ - and $\frac{1}{10}$ -scale Modified classes were dominated by Trinity drivers Joel Johnson and Josh Cyrul.

The biggest news by far, though, was the debut of Team Associated's TC3 touring car. "The A-Team" brought the cars, but unfortunately, only a handful of racers was available to drive them. Though heavily outnumbered, two TC3s made it to the A-main, and that's impressive, considering that every other team present had its sights set on smoking the A-Team's eagerly anticipated new tourer. Which team emerged victorious in the touring-car class—? Read on to find out; the answer might surprise you.

Above: look closely; you'll see many RC celebrities on this drivers' stand. Upper right: Team Schumacher driver Chris Tosolini was in a league of his own. He killed his Touring Modified class competition. Lower right: Billy Easton's TC3 on the grid before the A-main.



The ROAR Electric On-Road Nationals

Chalk one up for the underdog

QUALIFYING AND A-MAIN OVERVIEW

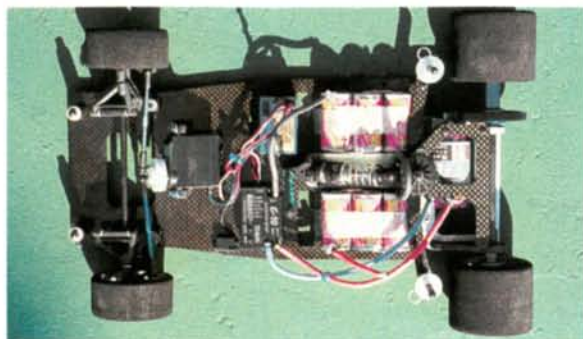
The drivers were given four rounds of qualifying in each class, so everyone had an ample opportunity to put in a good run. IFMAR starts ensured that things didn't get too messy during the qualifiers. The 10 fastest drivers then faced triple A-mains to determine the winners.

• **$\frac{1}{12}$ Stock.** Twenty racers signed up for this class. Eric Desrosiers set the TQ pace in the first round with a 33/8:12.65, but James Arluck was the man on top after the second round. After round three, though, Desrosiers once again claimed the TQ with a 33/8:01.35. Arluck came back strong in the fourth round with a 33/8:00.21 to clinch the TQ and the prime spot on the A-main grid. Desrosiers easily won the first A-main, but Brad Long held him off during

the second. Desrosiers had no competition in the third and final Main and once again, he easily won. Eric Desrosiers is the new ROAR $\frac{1}{12}$ -scale Stock national champion. Brad Long ended up in second, while TQ James Arluck had to settle for third.

• **$\frac{1}{10}$ Stock.** Only 10 racers competed in this class, which meant that all the contestants were A-main finalists before the race even started. James Arluck ended up earning the TQ in this class, too, but Brad Long was a close second. Arluck smoked the field in the first A-main, but Long had some battery problems and could not start the race (DNS). Long was in the zone during the second and third Mains, though; he won both with very little resistance. Brad Long is the new $\frac{1}{10}$ -scale Stock national champion.





Brad Long's 1/10 Stock class-winning Associated 10L3. Looks stock, huh?

James Arluck secured second, and Eric Vasutin won the battle for third.

• **Touring Stock.** Over 60 drivers competed in this class—more than competed in all of the pan-car classes combined. Team Losi captain Richard Trujillo nailed down the TQ in this class, but Team Schumacher driver Darren Shank was right behind him in second place. During the triple A-mains, it was all Trujillo and Shank, as the two swapped positions repeatedly the entire way. Shank won the first Main and Trujillo won the second, and that ensured a battle in the third and final Main. The two drivers put on quite a show for the spectators, but in the end, Shank crossed the line first to take the win and the national championship. Trujillo was second, and Spencer Perdue ended up the overall third-place winner.

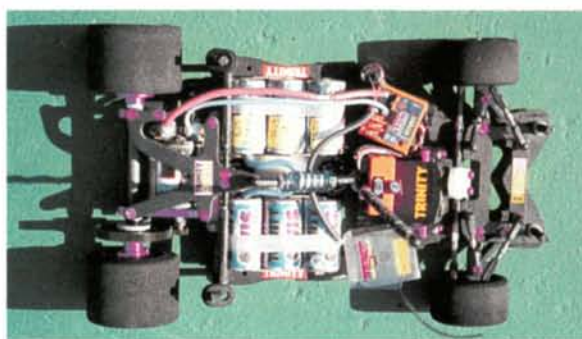
• **1/2-scale Modified.** Only 30 drivers competed for the championship, and Team Trinity factory driver Joel Johnson was the fastest right from the start. Johnson posted a 36/8:04.19 in the first round of qualifying to set the TQ. Team GM/Team Associated driver Jon Orr and Team Trinity factory driver Barry Baker were the only other drivers to break the 35-lap barrier in the first round of qualifying. Johnson dominated every subsequent round and ended with the TQ after chalking up two blazing fast 37-lap runs in the final rounds.

Johnson's dominance carried over to the first A-main, which he won with an 8-second cushion. Kinwald finished second; Orr settled for third. The scales tipped in the other direction during the second A-main, as Team Trinity factory driver Josh Cyrul took control of the race after battling it out with Johnson for several minutes. I have never seen these two drivers race so hard; they were rubbing fenders the whole way.

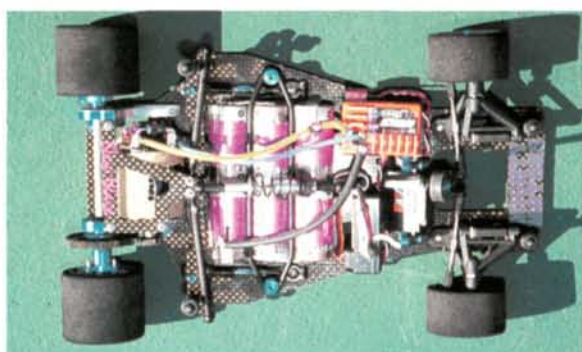
In the end, Cyrul was in front, and that meant that he and Johnson were tied going into the third and final Main. Johnson got the holeshot and took off, not to be seen again by his competitors until he came up from behind to lap the field! Johnson posted an amazing 38-lap run, which many had believed was impossible. Naturally, Joel Johnson was declared the '99 ROAR 1/2-scale Modified national champ, Josh Cyrul took second and Kinwald secured third—a 1-2-3 sweep for Team Trinity.

• **1/10-scale Modified.** Twenty-seven drivers were listed on the qualifying sheets. Josh Cyrul set the TQ pace in the first round but by round four, Joel Johnson owned the TQ.

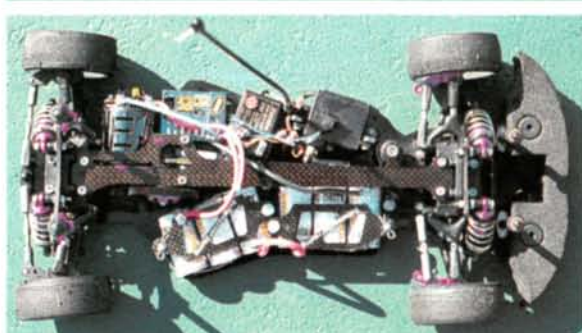
Joel Johnson's 1/2 Mod class-winning Switchblade 12. If this car could talk, it would sure tell some interesting tales.



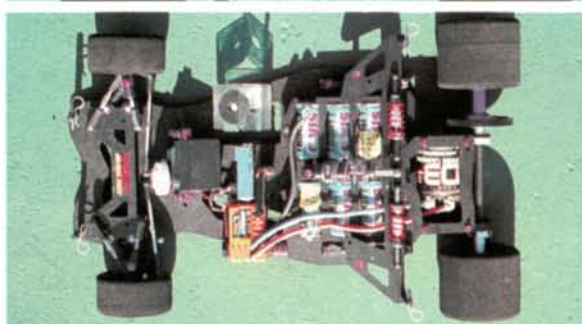
Eric Desrosiers won the 1/2 Stock class with his brand-new Speed Merchant Road Kill 12. Check out the battery placement.



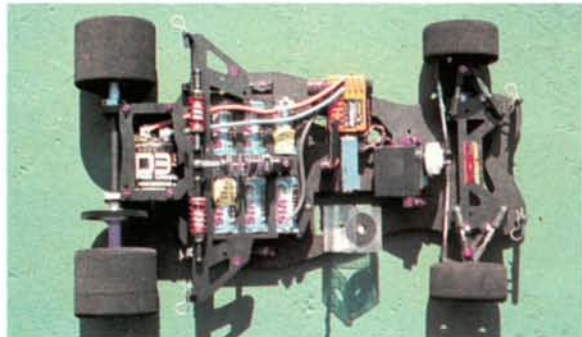
Darren Shank's Stock Touring class-winning SST 2000 '99. Schumacher swept the touring-car classes at the ROAR Nats.



Chris Tosolini's Modified TC class-winning Schumacher SST 2000 '99. This car was in the front the entire time.



Joel Johnson's 1/10 Mod class-winning Trinity Switchblade 10.





RACER news

Cyrul ended up qualifying in second, while Team Associated driver Chris Doseck held onto third. It was all Johnson during the first two Mains; he won both without ever being challenged and secured the second national championship for Team Trinity and himself. To allow the other drivers to vie for the second- and third-place honors, Johnson took the honorary DNS in the third (and final) Main. Josh Cyrul easily won second place, and Chris Doseck ended up third.

• **Touring Modified.** More than 100 racers competed, and this made it the largest class at the event. Everyone was surprised when Team Associated factory driver Tony Neisinger's name

appeared at the top of the qualifying order after the first round. Team Associated factory driver Billy Easton was close behind in second, which was a very promising start considering that both racers were driving the A-Team's new TC3 touring car for the first time. By round four, however, Team Schumacher driver Chris Tosolini was the man at the top of the roster. Easton ended up in second, and Team Yokomo driver Dave Vera secured third.

Tosolini was on fire during the Mains. Not even one racer got close to him, and as a result, he lapped the entire field in

both the A1 and A2 Mains to secure the national championship.

Tosolini posted super-fast, 18-lap heats; none of the other drivers could match them. To give the other drivers some extra room on the track,

Tosolini sat out the last round. Joel Johnson ended up on top after posting a 17/4:02.38, but six hungry drivers were all on the same lap—only seconds behind—and challenged him the entire time. The third Main win earned Johnson the second-place trophy; Easton took third.

FINAL THOUGHTS

The ROAR Electric On-Road Nats was an eventful race. The new Team Associated TC3 touring car made its debut; Team Trinity factory driver Joel Johnson won both the 1/2- and 1/10-scale classes; and underdog drivers Chris Tosolini and Darren Shank put Team Schumacher in the winners' circle in the Stock and Modified Touring classes. The Ripon R/C Speedway track was as awesome as always, and the staff did a great job of managing the event. Congratulations to all the talented 1999 ROAR Electric On-Road champions. Hope to see you all there next time.

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■



Schumacher driver Chris Tosolini prepares his car for battle. The blue tarps were used to help block out the sun. It was scorching hot during the Nats.



Team Trinity factory pilot Joel Johnson picked up wins in both the 1/2- and 1/10-scale Mod classes. His own teammates were his toughest competitors.

Electric On-Road Nationals

1/12-SCALE STOCK

FIN.	QUAL.	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	BODY	TIRES
1	2	Eric Desrosiers	Speed Merchant	Handout	New Wave	Novak	Futaba	Protoform	NA
2	3	Brad Long	Associated	Handout	Team Orion	LRP	Airtronics	Andy's	Jaco
3	1	James Arluck	Associated	Handout	Team Orion	LRP	Airtronics	Protoform	Jaco

1/12-SCALE MODIFIED

1	1	Joel Johnson	Trinity	Trinity	Trinity	Novak	Airtronics	Andy's	TRC
2	2	Josh Cyrul	Trinity	Trinity	Trinity	Novak	Airtronics	Protoform	TRC
3	3	Brian Kinwald	Trinity	Trinity	Trinity	Novak	Airtronics	Protoform	TRC

1/10-SCALE STOCK

1	3	Brad Long	Associated	Handout	Reedy	Tekin	Airtronics	Andy's	Jaco
2	1	James Arluck	Associated	Handout	Team Orion	LRP	Airtronics	Protoform	Jaco
3	2	Eric Vasutin	Trinity	Handout	Trinity	Tekin	KO Propo	Andy's	TRC

1/10-SCALE MODIFIED

1	1	Joel Johnson	Trinity	Trinity	Trinity	Novak	Airtronics	Andy's	TRC
2	2	Josh Cyrul	Trinity	Trinity	Trinity	Novak	Airtronics	Andy's	TRC
3	3	Chris Doseck	Associated	Mighty	SMC	GM	KO Propo	Protoform	Jaco

TOURING STOCK

1	2	Darren Shank	Schumacher	Handout	Trinity	LRP	Airtronics	Andy's	Pro-Line
2	1	Richard Trujillo	Team Losi	Handout	Peak	Novak	Airtronics	Andy's	Pro-Line
3	5	Spencer Perdue	HPI	Handout	Team Orion	Tekin	Airtronics	Andy's	Pro-Line

TOURING MODIFIED

1	1	Chris Tosolini	Schumacher	Fantom	Fantom	LRP	Airtronics	Andy's	Pro-Line
2	6	Joel Johnson	Team Losi	Trinity	Trinity	Novak	Airtronics	Andy's	Pro-Line
3	2	Billy Easton	Team Associated	Reedy	Reedy	LRP	Airtronics	Protoform	Pro-Line

Detail your monster truck

by Kevin Meyer



Turning your beast into a beauty

There is no sight more exciting than that of a snarling monster truck drag racing over a pile of rusted junkers; the scaled-down RC versions of these sheet-metal stompers are just as exciting. For monster-truck realism, Tamiya's* Clod Buster and the Kyosho* USA-1 are undisputed "kings of the hill," but many hobbyists get big-tire thrills with less expensive 2WD machines, such as the Traxxas* Stampede. To show you can get just as much tough-truck eye appeal with the lower-priced flatbeds, this "How to" is devoted to turning your backyard basher into a rugged-looking 4x4.



Parma includes a sheet of precut decals with Ford-style grill, headlights and taillights. I decided to make custom headlight covers of black vinyl, and I used a permanent-ink pen to simulate silver rivets. Parma hasn't missed a thing: there's even an insect deflector molded into the hood! For a tinted effect, I sprayed this with Pactra Outlaw Black (no. RC250).

YOU'LL NEED

- Parma Ford F-150 truck body (no. 10373) or equivalent.
- Polycarbonate-compatible paint.
- Masking tape.
- Plastic food-wrap.
- Hobby knife with spare blades.
- Material for tonneau cover.
- Double-sided tape.
- Options
 - cardboard and/or Lexan sheet.
 - black and yellow vinyl sheets.
 - trim tape.

BODY BRUTAL

The new Ford F-150 (no. 10373) body from Parma* was just what I had in mind for my monster transformation. The decal sheet includes precut headlights, grill work and taillights—all of which add a lot of detail—but I decided to go a step further and make my own custom headlight covers. I cut out a piece of black vinyl in the shape of a headlight. Make a template for this by tracing the outline of the headlight then transferring the outline to the black vinyl sheet. Once the headlights had been installed on the body, I simulated small rivets around the outside of their covers as a finishing touch.

Unique features of the Ford shell are the separate windshield visor and a fairing that's attached to the rear of the cab. These can be painted to match the rest of the body or contrast with it. The body set includes a precut window mask (a welcome bonus) that speeds up the painting sequence and helps you avoid making masking mistakes. After I had applied four coats of Pactra* Metallic Red (no. RC264), I put on three coats of Pactra Indy Silver (no. RC262) to "spark" the flake in the metallic paint.

Before painting, I masked certain areas to make a custom tear design. When I removed the mask, I finished the paint scheme with Parma's excellent FasKolor water-based paints. I sprayed Fasblack (no. 40001) along the edges of the design for a shadow effect. I used a hairdryer set on "low" to quickly dry the paint; then I applied Fasfluorescent Red (no. 40105). Fasyellow (no. 40101) went on next, to make the finished product resemble molten lava. Last, I sprayed on three coats of Faswhite (no. 40000) to highlight the red and yellow.



The bright chrome of these RPM* Slingshot rims (nos. 81893/81883, front/rear) augments this monster's sharp looks.



Rear mud flaps can easily be cut from scrap Lexan. Paint the flaps to match the truck's body, or use plain old black. The Autographics shapely silhouette is available on decal sheet no. 10866. I used sections of Autographics "Brushed Aluminum" on the tops and bottoms of the flaps to make them look solid. The only thing missing is the mud!

The separate visor cab fairing are included with the body kit. Tinted windows are a must for monster trucks; I used Dahm's* Smoked Grey Insta-Tint (no. D814).



To create a layered look, I cut the yellow "CRUSH'EM" logo with Roland's* STX-7 vinyl cutter then laid it on a black background. I drew the "cracks" and small detail lines with a Parma detailing pen and edged the tonneau cover with black Pactra trim tape and simulated rivets.

COVER UP

In addition to painting the truck bed, there are other customizing options. I wanted to make a tonneau cover, so I headed for the nearest fabric store, where I found several interesting fabric patterns; I went for the obvious one—monsters!—a Halloween "Monster Mash" motif.

The material can be applied in one of two ways:

- Trim the material to fit, then use double-sided tape to hold it in place along the edges of the truck bed (be sure to use narrow tape).
- Cut a piece of cardboard or scrap Lexan to fit inside the truck bed. Mount the material



I made splash guards from scrap Lexan, and painted them to match the body. I found the mini Ford logos in my decal stash.

on the piece and attach it to the inside of the body with Velcro®-brand fastener or double-sided tape. This method allows you to change the cover whenever you like.

KEEP IT CLEAN

Mud flaps go with trucks, whether they're small splash

guards or giant flaps hanging off the rear bumper. They add style yet are functional, deflecting water, rocks and mud away from the body. For my truck, I constructed flaps and splash guards from scrap Lexan. These can be painted, or just covered with colored vinyl cut to size (as mine are). You can give them a personal touch with lettering or add snappy graphics.

For a solid metal look, I covered the flaps with Autographics* "Brushed Aluminum" (no. 901). I also added some mini goodies from Autographics* Mini Details sheet. Double-sided servo tape works well to attach the mud flaps to the rear bumper, but they alternatively can be permanently attached with hardware (use no. 4-40 button-head screws—two per flap).

To create splash guards, I used leftover wheel-well cutouts. I had already painted these to match the body, so I just cut out the shapes I wanted. I first made a cardboard mockup; this gave me the correct size and shape for cutting the plastic. When I was satisfied with the cardboard template, I traced its outline onto the wheel-well scrap, then I flipped the template over to make the reverse image. I modeled a small flange into each piece. To do this, scribe a line with a hobby knife along the flange, then bend the flange at a 90-degree angle to the guard. Attach the flange to the inside of the body with double-sided tape. Scoring the material for the flange may weaken it, but the bend can be reinforced with a strip of black electrical tape or trim tape. Add small logos or graphics for realism.

FINAL LINES

RC monsters are as much fun to customize as they are to drive. Paint schemes, wheels, decals, trim work—all are just waiting for that special touch; use your imagination. Can't come up with a good idea? Inspiration is everywhere: look for photos of customized trucks in magazines, tune in to ESPN for a monster truck rally and check out the four-wheeler next to you at a stoplight. Collecting ideas for a project can be as much fun as the project itself. Think of it as an adventure; sometimes, getting there is half the fun!

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

Care for Bearings

Put the smooth back in!

by Doug Mertes

IT WAS SOMETIME during the second round of qualifying that I heard the guy start to complain. I really wasn't trying to listen in on the conversation he was having with his friends, but the combination of his frustration and the volume at which he was speaking made it difficult not to hear about his problem.

"These expensive bearings just aren't worth it!" he declared. "I've had to replace four wheel bearings in just the past two weeks, and they weren't the cheap ones." He ranted on about how the bearings had self-destructed and that he felt he had been ripped off by the store where he had bought them.

He had paid good money for those bearings, but they were the wrong ones. The size was correct, but instead of buying bearings specifically designed for his application, he had just gone up to the counter and asked for bearings of a particular size. Figuring that more expensive bearings would be best, he decided to spring for a type that has less rolling resistance, but unfortunately, they were intended for a completely different racing environment—one that didn't involve dirt. Even worse, this guy was under the impression that "bearing maintenance" consisted of squirting oil—any type of oil—onto the bearings a couple of times a year. The result was that he set himself up for expensive, regular replacement of a product that should easily last for an entire season or longer. Are you in the same predicament as that fellow? Read on to find out how you can make your bearings last.



There are three basic types of ball bearings (from left to right): metal shielded, fiber- or Teflon-shielded and rubber-sealed. Metal-shielded bearings offer the least friction but also have the least protection against the elements; rubber-sealed bearings are the best protected against contamination, but they also have the most rolling resistance.

PHOTOS BY WALTER SIDAS

MATCHING BEARINGS TO YOUR APPLICATION

- **Metal-shielded bearings.** There are bearings to suit all applications. For minimum rolling resistance, install bearings with metal



If a good soaking doesn't bring your shielded bearing back to life, it's time to open it up for a more thorough cleaning. Using the tip of an X-Acto knife, carefully remove the thin C-clip that secures the shield.



Be careful not to bend the shield when you pull it out. Note how much the C-clip expands once it's out of the bearing.

shields. These vary in price, and you usually pay extra for a more precise fit of the balls in the races in the bearing case. Better bearings also have less slop.

The problem is that the metal shield provides almost no protection against the grit, dust and crud that cover every outdoor track. Metal-shielded bearings are ideal when used in a sealed gearbox or differential, but they are a poor choice for off-road. Sure, they roll like champs when new, but after several weeks of exposure to dirt, they will be crunchy, feel gritty and be on their way to self-destruction—especially if they've been over-lubricated (excess lube attracts grit and crud!). Unless they're well protected

from the environment, metal-shielded bearings are best for carpet racing. Even then, carpet fibers will eventually work their way past the shields and into the spaces between the balls and the race and will stop the bearing dead in its tracks.

• **Graphite-, Teflon-, nylon-shielded bearings.** These types of bearing shields provide better protection because instead of a metal ring, they have one made of graphite, Teflon, or stiff nylon. At first, these bearings offer some resistance, and they won't reduce friction as much as metal-shielded bear-

This contaminated grease isn't helping the bearing's smoothness or longevity. Time to blast it out!



Work over a towel to catch the overflow of solvent.

ings will until they've been broken in after several runs. That's when the hard shield gets worn around the inner race and allows the bearing to spin more freely. Bearings like these work well on dirt, but eventually the shield will wear and loosen to the point at which it doesn't provide enough protection. Unless it receives some maintenance, it's only a matter of time before the bearing self-destructs—just like the metal-shielded bearings.

These bearings are well suited to touring cars used in outdoor parking-lot racing where there tends to be less junk than on a dirt track. DuraTrax* and Boca Bearing* make these bearings, and they're available through mail order and your local hobby shop. Expect a solid season of sedan car fun with a set of these.

• **Rubber-sealed bearings.** For off-road racing, you just can't beat rubber-sealed bearings. These don't have the free feel or minimal rolling resistance of the shielded types, but they'll hang on for months and months, even when you run them in the mud. That's because the soft-rubber seal grips the inner race, and it keeps out even the finest grit. The inner ball races will last a long time because the lubrication stays in the bearing case and isn't fouled by particles that grind the bearings down. Schumacher*, Tamiya* and Boca all sell rubber-sealed bearings; expect a set to last several seasons.

MAKING BEARINGS LAST

All types of bearings will last much longer than I suggested if they are maintained properly. Have a few bearings that you think may be all washed up? Try one of these procedures to see whether you should keep 'em as backups or use them for fishing weights.

■ **Bearing soak.** This method works best with metal-shielded bearings; the other types of shield don't allow fluid to flow easily through them. If the case or seals of a gritty bearing aren't obviously damaged, try to flush the offending materials out of the bearings with solvent and a shaker jar. Kose* makes a small container with an interior screen that holds the bearings, diff balls and other small parts, so you don't have to fish them out of the solution. I just use a small glass jar—I particularly like the ones you get with yeast and artichoke hearts (call me weird)—with ½ inch of lacquer thinner in the bottom.

Don't like the smell of solvents? Boca claims its Midas Oil is ideal for this task. Drop in the bearings, shake 'em around for a while, let them sit for an hour until the solvent breaks down the grit into smaller particles, then shake again to flush out the dirt. Remove, lube and reinstall the bearings, and you'll find that they work smoothly again. You might have to repeat this process a few times or help it along by blowing out the bearing with compressed air



RPM and Robinson offer excellent bearing cleaners designed to spray solvent through the bearing. This is RPM's unit.

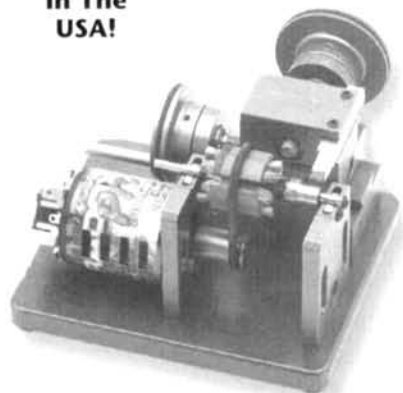


Squeaky clean! Just relube and reinstall the shields.

TRU-LATHE

Pro

Made
In The
USA!



- Ball Bearing "V" Blocks
- Ultra Fine Pitch Screw For Precise Feed
- Components Pinned To Base For Accurate Alignment
- V-Groove Dovetail Slides For Both Axis
- Extra Clearance Between Motor And Wheel Feed Crank
- Uses Standard 1/4 Tool Bits
- Blue Anodized Aluminum
- Handy Carrying Case

RC4111	Tru-Lathe 2 Pro	\$225.00
RC4112	Ball Bearing Conversion Converts older Trinity modified lathe to new ball bearing style.	\$59.99
RC4113	Stock To Mod Conversion Converts older Trinity stock lathe to new ball bearing modified style.	\$69.99
RC4105	Tru-Lathe 2 Pro Diamond Bit	\$85.99
RC4109	Tru-Lathe 2 Pro Carbide Bit	\$15.00

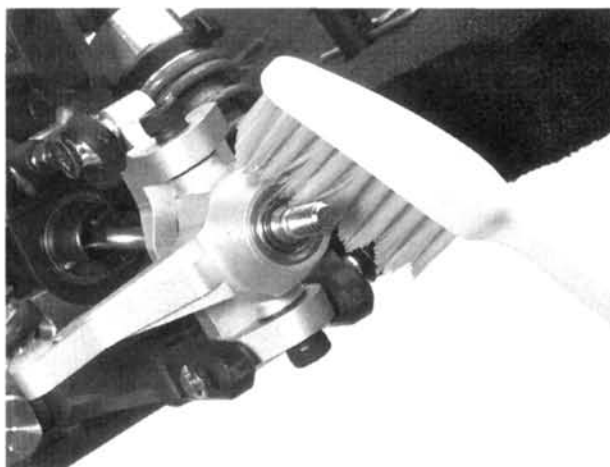


Tru-Lathe 2 Pro comes in carrying case with carbide bit, motor tubes, armature tubes and commutator cutting fluid. Requires stock motor and battery, (not included) for operation.

TRINITY

36 Meridian Road, Edison, NJ 08846
Ph: 732.635.1600
Fx: 732.635.1640
www.teamtrinity.com

HOW TO CARE FOR BEARINGS



A light brush-off between heats will prolong the life of shielded bearings; or you could let them go and then tear them down when they get really rough. Better to brush them off!

protection when you use a motor spray like this, and be very careful that the spray doesn't blow toward other racers. It's best to vent the bearing cleaner directly into a towel.

■ Disassemble or remove the shields. With a scribe or the tip of a new no. 11 X-Acto blade, carefully remove the narrow spring-metal retainers from the bearing shield's outer edge. If your vision is as poor as mine is, a loupe (a small magnifying glass available at jewelry and photography stores) will make this process much easier for you. It takes a lot of patience to remove the retainer, but once the inner races are exposed, it takes only moments to remove dirt. It's a lot harder to reinstall the shield in the bearing case, but if you practice for a while on an old bearing, you will eventually get the hang of it.

KEEP NEW BEARINGS "NEW"

Bearing maintenance is really very simple: just brush the crud off the exposed bearings between runs, and pull them all out every dozen heats to make sure they're not jamming up. Bearings inside a gear case or something similar require only a seasonal check, clean and relube.

As for lubricants, there are so many that it's easy to get confused. Some racers swear by special super-secret oils and unguents, but I have yet to find one that's truly superior. Marvel Mystery Oil, Mobil One, Royal Purple, Niftech* Milspec and others all seem to do a good job. If you run in a really messy, dirty environment, consider a dry lubricant such as Finish Line* KryTech. Because it's dry, it won't attract dust or grit, and it can make your bearings last longer.

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

or motor spray, but this jar method revives an amazing percentage of old bearings. Remember: the goal is to get the grit out; clean, well-lubricated grit is still grit.

■ Bearing cleaning devices. RPM* and Robinson* sell devices that hold the bearing in a small, sealed space. Motor spray is then forced through the bearing's interior to flush out grit, dust and all of the lubrication. This method is most effective with metal and other types of hard bearing shields. It works well, but it can also be messy. Make sure that you wear eye protection when you use a motor spray like this, and be very careful that the spray doesn't blow toward other racers. It's best to vent the bearing cleaner directly into a towel.



There are basically two types of bearing lube: "wet" and "dry." Both are liquids, but the dry stuff evaporates to leave a lubricant film. Paraffin-based lubes such as the Finish Line KryTech shown here and the White Lightning lubes (not shown) are the latest types of dry lubrication, and they work well. Wet oil-type lubes such as this Aero-Car* (right) lube have excellent penetration (good for shielded bearings) but can attract dust and grit if used excessively.

Cross Racing Pro Commutator lathe

Modified motors are almost always at the top of a racer's hop-up list. You can spend as much as \$80 on a modified motor, but no matter how good a motor is, its performance will not last forever. Inevitably, the commutator will become worn, and the motor will lose power; it's just a matter of time. However, you can extend the life of a motor and increase the power it produces by resurfacing the commutator on a comm lathe. This will make the motor run as if it was new. Cross Racing*, known for its incredibly well-machined aftermarket chassis components, has entered the lathe market with its own mini machine.

All of the Cross lathe's components are mounted on a 3/8-inch-thick aluminum base. Two steel plates serve as guides for the armature. Unlike those on many other lathes, the guide plates are fixed, which makes them more "square" and less likely to be knocked out of alignment. The only potential negative to this design is that the guides might not be far enough apart for some of the longer armatures. All of the arms that I've tried have fit, so I don't know whether this will ever be a problem.

To prevent the armature from sliding back and forth between the guides, shims are included with the lathe, but I prefer to use a pinion gear to hold the armature in place. It's quicker and easier to pinch one of the guide plates between the armature and the pinion gear than it is to use the shims.

A Cross stock bushing motor is mounted to the left guide plate, and it drives the armature by means of a rubber O-ring. The motor-mounting holes in the guide plates are slotted

to allow adjustment of the O-ring's tension by moving the motor up and down.

The cross-slide and lead screw bushing are made of slippery Teflon. This allows smooth operation throughout the tool's movement. Two setscrews are included to adjust the Teflon bushings as they wear. The two feed screws are also supported by Teflon bushings. There is an adjustable stop at the end of the cross-slide. When you set up the armature in the lathe, set this stop; it will prevent you from cutting the commutator too far down.

A unique feature of the Cross lathe is its cutter. This lathe uses a three-sided insert instead of a standard cutting tool. When the insert's edge becomes dull and will no longer cut the comm properly, simply unscrew it and turn it to a new cutting edge. When a standard cutting tool wears out, you usually have to throw it away, unless you have access to a grinder and the skills to properly sharpen a carbide bit. The machining inserts are readily available at any machine-shop supply store, and they cost less than a standard carbide bit.

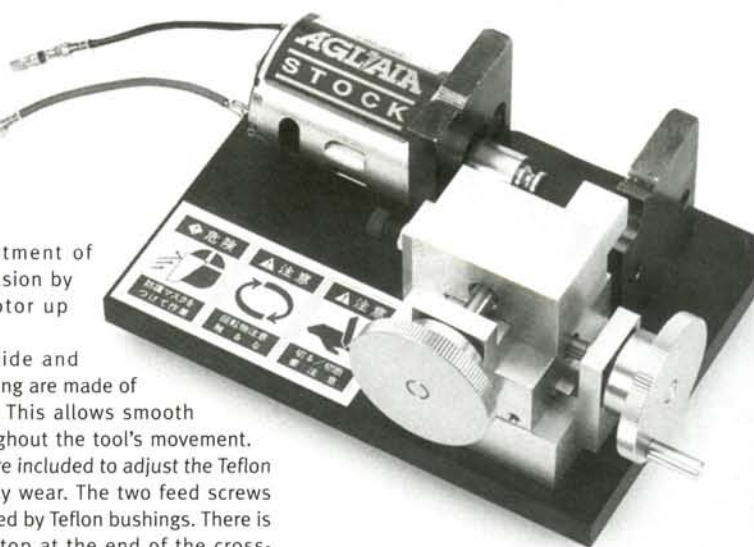
On most other lathes, you are able to adjust

Likes

- Fewer adjustments are necessary.
- Easy to use.
- Three-sided, precision cutting insert.

Dislikes

- No index marks on thumbwheels.



the bit's height, but the height of the Cross lathe's bit is fixed. All RC motors have an 1/8-inch shaft (large-comm Reedy motors excepted), so the height of the commutator is always the same. It makes sense that a properly set up lathe should never need to have its bit's height adjusted. Another plus is that this bit is more solidly mounted than adjustable, standard bits, and this contributes to a finer, more consistent cut.

I am generally impressed with this lathe. Its sturdy construction ensures a fine cut every time. How does it stack up against other lathes? Very well, if you can get over the mental hurdle of the fixed guides and cutting tool. The combination of fine-quality materials and precise machining is excellent. The only drawback is that the thumbwheels don't have indexing marks, and this makes it more difficult to set the depth of the cutting tool precisely. Other than that, I would be happy to walk out of a hobby shop with this lathe.

—Kevin Hetmanski

OFNA Shock Rebuilding Station

Have you ever set out to rebuild your shocks for that killer setup—only to spill more oil than the Exxon Valdez all over your pit bench? OFNA's* Shock Rebuilding Station takes away much of the mess and hassle that goes with shock rebuilding. With space to hold four, 1/8- or 1/4-scale shocks, the rebuild station can handle just about any off-road shocks. (Note to Losi owners: you'll need to leave the preload collars on the shock bodies so they won't fall out of the shock-holding holes.) A magnetic pad on the front of the station holds those elusive E-clips, tiny preload collar screws and other small steel parts. Space is also provided for you to hang the shafts and pistons while work is in progress, and there's even a metric ruler molded into the unit so you can measure the reassembled shocks. The OFNA Shock Rebuilding Station is simple, durable and inexpensive—a good addition to any bench or pit bag. Part no. 10910; \$7.95.



Trinity Team Kinwald aluminum rear hubs for Team Losi Double-X vehicles

If you're looking to beef up your Double-X series machine, you should consider adding the newest items in the Trinity* Kinwald Edition parts lineup. These rear hubs, available with either 1 or 1.5 degrees of toe angle, are machined from virtually indestructible aluminum and anodized in the familiar Kinwald blue. The hubs' fit and finish are flawless; the bearings are a perfect fit with no noticeable slop. Since the aluminum does not offer the screw-gripping action of the plastic hubs they replace, I installed the upper link ball with a touch of blue Loctite to make sure it won't loosen up during a race.

Since the aluminum hubs match the stock parts' geometry, there is no change in handling—just the peace of mind that comes with knowing a blown hub won't end your race prematurely. If you'd like one less thing to worry about or want to enhance the "ooh and aah" factor of your Losi XX truck or buggy, these new hubs are definite "must-haves." Part nos. TK3500 (1 degree), TK3501 (1 1/2 degrees); \$39.95.



Keyence A-01R and A-01RZ reversing ESCs

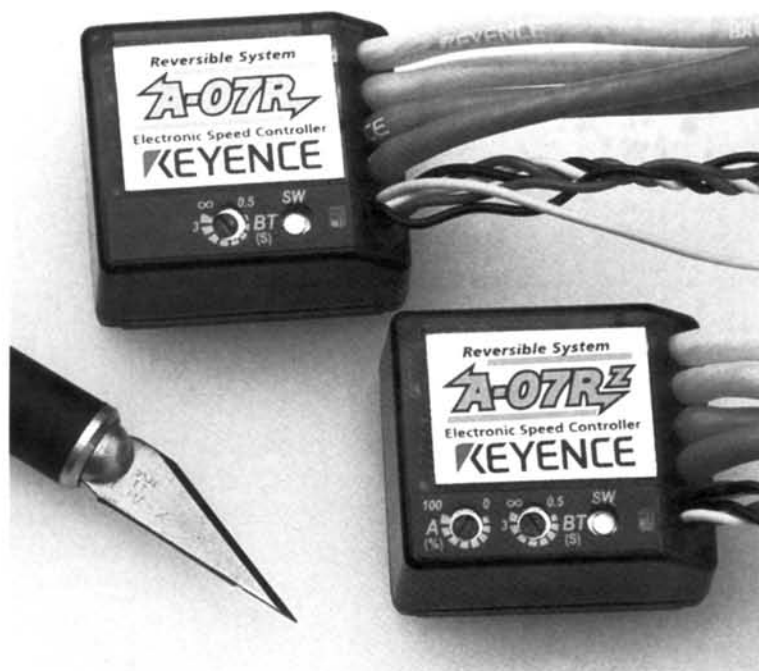
Almost as soon as Keyence* appeared on the RC scene, the brand was established as the big name for tiny electronics, thanks to products such as its HO-scale Desk Runner truck and microsize rotor craft that could be piloted around a living room. Keyence's ESCs also were cleverly engineered to be tiny (the diminutive A-01 is still among the smallest of the small).

Now, Keyence brings its technical savvy to reversing controllers: the A-07R and A-07RZ—a pair of ESCs scarcely larger than the forward-only A-01s. Typical reversing ESCs are much larger than the Keyence pills and seem far more robust with their large heat sinks, so I was curious to see how well the A-07R and RZ would stand up.

FEATURES

The Keyence ESC's most obvious feature is its tiny size; the translucent case measures a scant 31x26x18mm and allows you to see how Keyence can jam so much into it. Three circuit boards are stacked inside like the layers of a cake, and there are 24 tiny FETs. Here's what those innards have to offer:

- **Brake timer.** The A-07R and RZ look identical except for the controls on their faces. The A-07R's single adjustment potentiometer (pot)



adjusts the brake timer (BT). The BT adjusts the time delay before reverse kicks in, and it can be adjusted from 0.5 second to "infinity," which is the lock-out setting—no reverse at all. Until reverse kicks in after the set delay time, the A-01R and RZ offer proportional braking.

- **Current limiter.** Only the A-07RZ has this feature. The current limiter is a simple pot, and it will inhibit top speed if you dial it down too low.

- **Heat sink.** Out of the box, the A-07R and RZ have no exposed FETs or heat sinks, but an accessory heat sink is supplied that takes the place of the unit's faceplate. Once the faceplate is lifted off, a large metal plate that serves as an internal heat sink is exposed (Keyence refers to this as the "MPRS"—metal plate radiation of heat structure). An adhesive strip holds the aluminum heat sink to this plate to increase cooling efficiency.

MANUFACTURER'S SPECIFICATIONS

Case size:	31x26.5x8mm
Weight:	26g
"On" resistance:	0.18 milliohm (measured at FET junction)
Motor limit:	7 turn

- **Push-button setup.** What self-respecting ESC doesn't include this? Keyence opts for a "confirmation"-type setting procedure: press the setup button three times—once to confirm neutral, again for forward throttle and once more for reverse. *Continued on page 190*

R.E.K. Performance RS4 Nerf Wings

Have you ever damaged a suspension arm, or had a race day cut short by a driver who T-boned your car? R.E.K. Performance* has come up with a simple fix to protect your Nitro RS4—nerf wings. The R.E.K. nerf wings feature a rigid lightweight design that can be bolted up to a non-pull-start RS4; some trimming is required to fit them on one with a pull-starter; trimming may also be necessary for gear clearance. Part no. 1010; \$3.95.



Tamiya TA03R-S/F-S FRP chassis conversion kit

If you own the short-wheelbase version of the Tamiya* TA03 or TA03R, this conversion kit is all you need to swap the stock tub chassis for a more rigid fiberglass setup. The kit supplies the upper and lower decks plus the plastic parts you'll need to mount your existing gearboxes. The kit also includes all of the hardware needed for the changeover, including the 35mm screws to secure the battery tray. Though chassis geometry isn't changed by the FRP parts, the conversion makes the kit-supplied mechanical speed control inoperable. Assembly is simple, and a slight performance gain accompanies a dramatic increase in cool factor. Part no. 53387; \$53.



Continued from page 188

• **Connectors and accessories.** Both reversing A-07s include the industry-standard Tamiya-type battery connector and bullet connectors on the motor leads. Three capacitors are included, as are decals and a plastic screwdriver/setup tool.

TESTING

The A-07R found a home in one of the Wild Willy 2s tested for this issue, which was set up with a Trinity Chameleon motor and a 3000mAh pack. The A-01RZ was taped into a Yokomo MR4-TC that was also equipped with a 3000 pack and Trinity modified power—this time, a 13 double.

The A-07R gave me some trouble; it wouldn't engage full reverse without stuttering badly, although partial throttle reverse operation was fine. I swapped the unit over to another Wild Willy (equipped with an AM Futaba Magnum Junior and the

Likes

- Fits anywhere.
- Adjustable brake delay.
- Runs cool

Dislikes

- Unusual glitch with A-07R. (I couldn't duplicate the problem in another car, but a glitch is a glitch.)

kit motor), and it worked fine—no stuttering or glitches—even though the kit motor didn't have any capacitors.

The A-07RZ was subjected to more rigorous testing. I slammed the modified sedan from forward to reverse and drove it at partial throttle in an attempt to overwork the ESC, but it barely warmed up. The cool, breezy test conditions probably helped, but I didn't even have the stick-on heat sink in place, so I doubt that the ESC was helped much by the climate. Truly impressive.

THE VERDICT

Both A-07 reversing ESCs perform reliably (weird glitch notwithstanding) and can be effectively tuned to your reversing needs with the handy brake timer. The "Z" model's current limiter is a nice touch, but since I like to use full power all the time, I didn't use it outside of testing. If you plan to race, the Z's current limiter and reverse lock-out will let you race legally, and you'll be able to reduce wheelspin with the current limiter. For most drivers (me included), the A-07R is all the ESC you'll need.

The best reason to buy either of these controllers is their size. There are lots of reversing ESCs out there that perform as well, but none can fit into as small a space. Nobody does tiny like Keyence!

—Peter Vieira

General Silicones Fiberglass rolover antennas

General Silicones* has gone 180 degrees—from producing soft silicone fuel line and exhaust cou-

plers to making "hard" fiberglass antennas designed to "spring" the car back onto its wheels after a rollover. The solid, tapered antennas come in various fluorescent colors, and each has an aluminum mount that features an O-ring clamping mechanism to hold the removable fiberglass shaft. The shaft features a metal ball tip with a hole to secure the end of the antenna wire.

The General Silicones antennas are easily mounted with the included oversize button-head screw, and the aluminum base lends plenty of support. If your track allows

rollover antennas, the General Silicones version is the one to buy.
GSA00420; \$12.99



Parma Paint masks

If you lack the artistic ability to tape up and paint a cool-looking body—or just want to save yourself a ton of prep time—Parma* makes masking simple with custom masks cut from high-quality vinyl. The

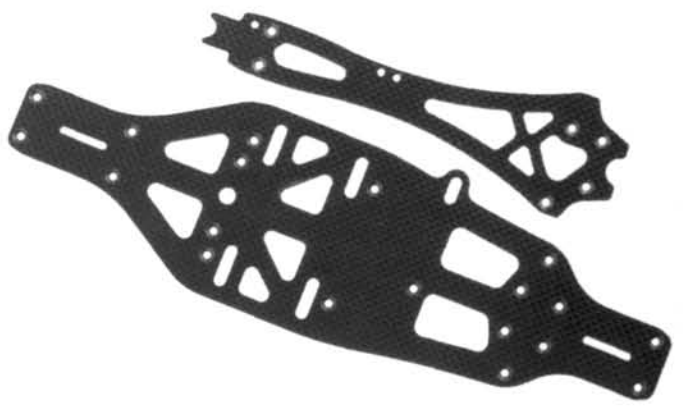


graphics are not "weeded," so you can lift out the negative or positive areas to suit your needs. Designs include flames, lightning and barbed wire, and all are precisely cut. Parma does not supply transfer tape, however, and you're just about guaranteed to goof up the graphics if you try to apply them without it. You can get transfer tape from a sign shop, or in a pinch, you can use draftsmen's tape or masking tape.
Part nos. 10801 (lightning), 10802 (barbed wire), 10662 (flames); \$4.25.

Tamiya TA03R-S/F-S Carbon Chassis Set

For the ultimate in short-wheelbase TA03 performance, these premium-quality graphite chassis plates can be swapped for the FRP plates included with the 53387 conversion kit. Unfortunately, you must have the plastic

parts and hardware included with the FRP kit to use the graphite chassis plates. The combo is pricey, but the parts are topnotch and assembly is strictly bolt-on—as is always the case with Tamiya.
Part no. 53386; \$92.



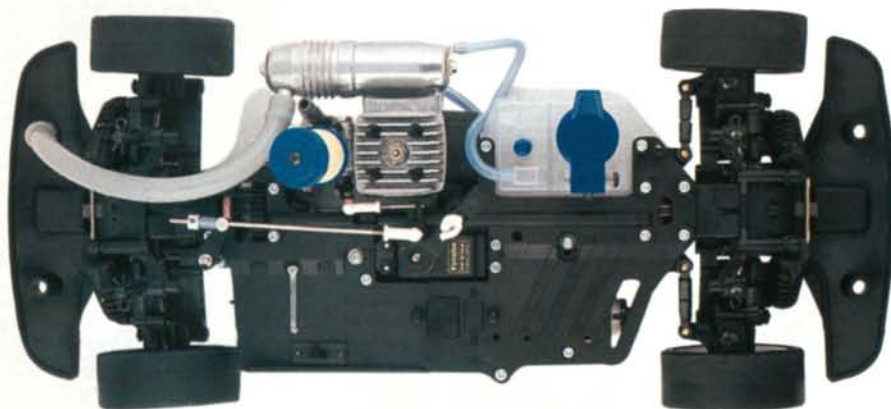
*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

NEW KIT NEWS

This month, we bring you a new feature called "New Kit News"; it's our way of keeping you up to speed with the many hot new kits hitting the shelves. This month, we have a pair of Calsonic Nissans—one from Tamiya*, the other from Kyosho*.



TAMIYA CALSONIC NISSAN TG-10 by Doug Huse



As is always the case with Tamiya, the full-scale car's body has been faithfully reproduced in exact scale with every body line and crease done flawlessly. Complementing the body is an excellent decal set; it's well-printed and easy to apply. Although it has been said a hundred times before, here goes again: Tamiya produces both the best bodies and best decal sets in the business. Period.

PERFORMANCE

The TG-10 is a solid car with good performance and exceptional durability. For fast fun, it's hard to find a package with real nitro-power sound and smell that's as easy to build and operate as the TG-10. Also, If you have competition in mind, Tamiya offers a wide range of hop-ups to fine-tune the TG-10 for any track.

Specs

Length: 16 in. (406mm)
Width: 7.2 in. (182mm)
Wheelbase: 10.11 in. (256.8mm)
Weight: 65 oz. (1,840g)

Required accessories

- 2-channel radio.
- Steering and throttle servos.
- Receiver pack.
- Fuel.
- Glow-igniter.
- Paint.

Features

- 2.5mm duralumin lower chassis plate with fiberglass-reinforced, nylon upper deck.
- Front and rear skidplate/bumpers.
- Full-time shaft-driven 4WD.
- Ball-bearing-supported front and rear bevel-gear diffs.
- Carbon-fiber disc brake.
- Two-piece lower A-arms with threaded upper links.
- Plastic, oil-filled shocks with one-piece piston/shock shafts.
- Tamiya FS-12LT pull-starter engine with bearing-supported crankshaft, cast heat-sink head, rotary type single-needle carb and canister muffler.

Tamiya's TG-10 does not fit the usual nitro-tourer mold; its shaft drive and 182mm width are just two unique features.



KYOSHO CALSONIC NISSAN GP SPIDER MK-II

by Greg Vogel

Specs

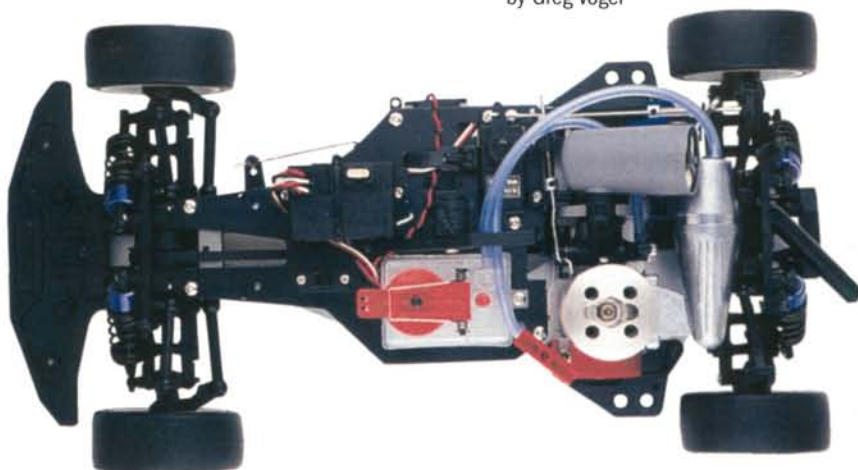
Length: 17.3 in. (440mm)
Width: 7.9 in. (200mm)
Wheelbase: 10.2 in. (260mm)
Weight: 54.6 oz. (1,548g)

Required Accessories

- 2-channel radio.
- Steering and throttle servos.
- Receiver pack.
- Fuel.
- Glow-igniter.
- Paint.

Features

- Double-deck aluminum chassis.
- Full, 16-piece ball-bearing set.
- Three-belt, full-time 4WD system with front and rear bevel-gear differentials.
- Vented, steel disc brake with fiber pads.
- Oil-filled coil-over shocks.
- A-arm suspension with one-piece, molded camber links and tie rods.
- GS-11R ball bearing engine with pull-starter and single-needle rotary carb.



Unique to this kit is the detailed Nissan body with molded ABS plastic spoiler and mirrors. A decal sheet is supplied to replicate the real racecar and five-spoke rims round out the exterior changes. Under the body, the kit is relatively unchanged from other GP MK-II kits, but we noticed that Kyosho now uses a composite barrel carb on the GS-11R powerplant.



PERFORMANCE

The easy-to-start GS-11R engine, coupled with an oil-damped suspension, makes the car manageable going into and coming out of turns and going over rough pavement. The engine is fairly tame because it has only a high-end needle, so the factory-set, low-end mixture does not deliver snappy throttle response. However, the fun is in going fast, and GP Spider series cars have a decent amount of scoot. As is expected of sport-type, 4WD nitro tourers, the Spider handles predictably and is a great way to carve up a parking lot.

**Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■*



The wide 200mm stance of the Kyosho Nissan is apparent. Note also the molded-in wing droop; the Tamiya Nissan has a flat wing.

Tuning and Modifying the Kawada SV-10 Alcyon



by Louie Patterelli



When I reviewed Kawada's* SV-10 in October 1998, the car did not disappoint: it won its first race right out of the box. It was good from the get-go, and with a few choice hop-ups it's even better. Keep reading to find out how much better.

- **Chassis.** I installed Kawada's redesigned main chassis plate; it's stiffer than the original and narrower, so when it leans into a corner, it's less likely to scrape the track. Its battery slots hold the cells closer to the center of the chassis; this improves transitional handling, but it does not have provisions for the stock battery mounts, so strapping tape or Velcro®-brand fastener offer the only ways to secure the pack. Stick packs are not an option.

I also added Kawada's lightweight bulkheads. These pieces look like modern art sculptures and weigh significantly less than their stock counterparts! I had to add 4 ounces, though, to reach the 53 ounces ROAR specifies as the minimum weight for sedans. You might wonder why anyone would bother with a light part if weight then has to be added, but think of it this way: with the lightweight goodies, I can place the additional 4 ounces where they can benefit handling most.

- **Suspension.** The SV-10 is very durable, but in the heat of competition, things can get bent or broken. My car's steering knuckles have broken at the lower kingpin boss a couple of times. The best remedy for this is an alloy replacement. GPM* made the blue-anodized ones you see on my car, but the folks at Kawada now offer a set with the same finish as their alloyed chassis parts.

The other kinks in the SV-10's armor are the inboard hinge pins: they bend easily, causing the suspension to bind. After bending the front pins during a race, I got creative. (It's always amazing what a last-minute thrash in the pits will yield.) I happened to have a set of Tamiya* M02 stainless-steel outer hinge pins in my toolbox. The hinge pins were the right diameter but slightly too long, so I had to put a couple of spacers at each end.

As extra security, I also added Kawada's hardened drive shafts. They're very long-wearing, and their bright finish looks cool. On the ends of those drive shafts are a set of Kawada's Beat X Superior hubs. Though these don't necessarily improve performance, the trick O-ring retainer is too cool for words, and the hubs aren't pulled off when the wheels are removed.



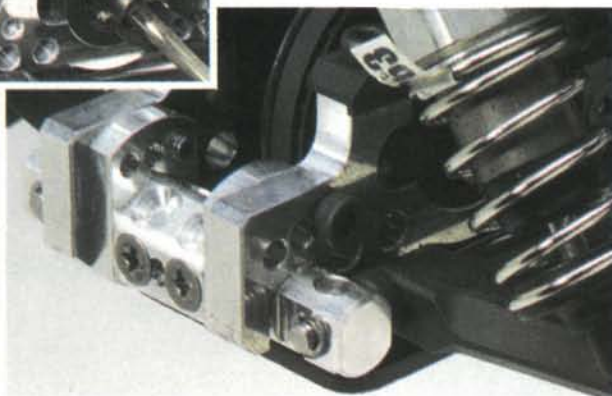
Nicely machined steering knuckles and hub carriers strengthen the front end considerably, and the Beat X hubs are very cool. You can just see the O-ring that captures the crosspin.



Above: when it's time to add the electronics, you might find the SV-10 can chassis a bit cramped, but the tiny Novak Atom is a good fit. Below: the stock SV-10 bulkheads are beautifully machined, but thanks to their extensive drilling and relieving, these hop-up units are lighter.



Right: Kawada's adjustable rear-toe setup: the telescopic mounts that hold the suspension arms' hinge pins move in and out of the center sleeve to adjust toe, then two screws are inserted into the center sleeve to lock the adjustment. Rotating the sleeve selects 1, 1.25, or 1.5 degrees of rear toe-in.



A narrower, stiffer chassis plate offers greater cornering clearance, but it prevents the use of stick packs (not that any racer will care about that!).

My final suspension mod was the addition of a trick rear toe-in kit. Kawada's clever system uses a pair of telescoping hinge-pin mounts and a rotating "cuff" that is indexed to the mounts. The picture tells how it works much more effectively than words, but I will add that the system quickly and easily adjusts both sides of the suspension equally, and the setup is rock solid.

• **Shocks.** Kawada's hard-anodized shocks are of excellent quality. Even after numerous oil changes, they still perform flawlessly and without leaking. On smooth surfaces, I've found that the SV-10 likes a stiff—really stiff—front end. HPI's* purple springs are your best bet; in fact, if you have some old Chevy valve springs lying around, you might try them. Kawada offers a tuned-spring set that comes with

a reference chart to help you choose the springs that will give you the handling traits you want—valuable for dialing the car in at different tracks. For most parking lots, Kawada's tuned-spring set will have you covered.

FINAL THOUGHTS

Although the Kawada SV-10 is more than competent in stock trim, the available hop-ups really do make a difference. The aluminum steering knuckles and rear toe kit offer the most noticeable advantages, but all the hop-ups and tuning options I selected contribute to the car's performance, and their cumulative effect is apparent on the track. I wouldn't say that I'm ready to win the next Touring Car Nats, but I bet my car could.

*Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■

SETUP

Greg Degani won the '98 NORRCA Nationals at Western RC with an SV-10 and Kawada USA posted his setup on its website (www.kawadausa.com). You can also download blank setup sheets for your own use. Check it out.

I tried the Degani setup and found it to be a good base to start from when dialing the car in for various tracks, but I added a few tweaks of my own to make the car a little easier to drive. You'll need to make your own changes to match your track, but this should get you started.

FRONT END

Pistons: "No. 1" (two holes)

Oil: 80WT Associated* silicone

Springs: HPI purple

Preload shock spacers: 2mm

Lower holes used for top shock mount

Camber: -1°

Caster: 0°

Toe-in: 0°

REAR END

SHOCKS

Pistons: "No. 2" (one hole)

Oil: 80WT Associated silicone

Springs: Kawada "F"

Preload shock spacers: 1mm

Shock-mounting holes used: lower hole for top shock mount; inside hole for lower shock mount

Camber: -2 degrees

Toe-in: 1.25 degrees

Tires: Kawada* TU-34M with Kawada Green inserts

Body: Protoform* Alfa Romeo 156

ELECTRONICS

KO Propo* EX-1 radio

KO Propo receiver

Airtronics* 94157 servo

Novak* Atom ESC

Trinity* Midnight 2 Pro

Trinity World Tech batteries

Deans* Ultra plugs

KAWADA HOP-UPS

Narrow main chassis—part no. SV-01E.

Rear toe-in-adjustment system—SV-61.

Alloy front steering knuckles—SV-57.

Alloy C-hub (5° caster)—SV-58.

Alloy suspension mount—SV-62.

Motor heat sink—SV-53.

Aluminum spur-gear mount—SV-54.

Lightweight bulkheads (F/R)—SV-40/SV-41.

Hardened universals (pair)—SV-20H.

Tuned-spring set—SV-55.

Stabilizer-bar set—SV-52.

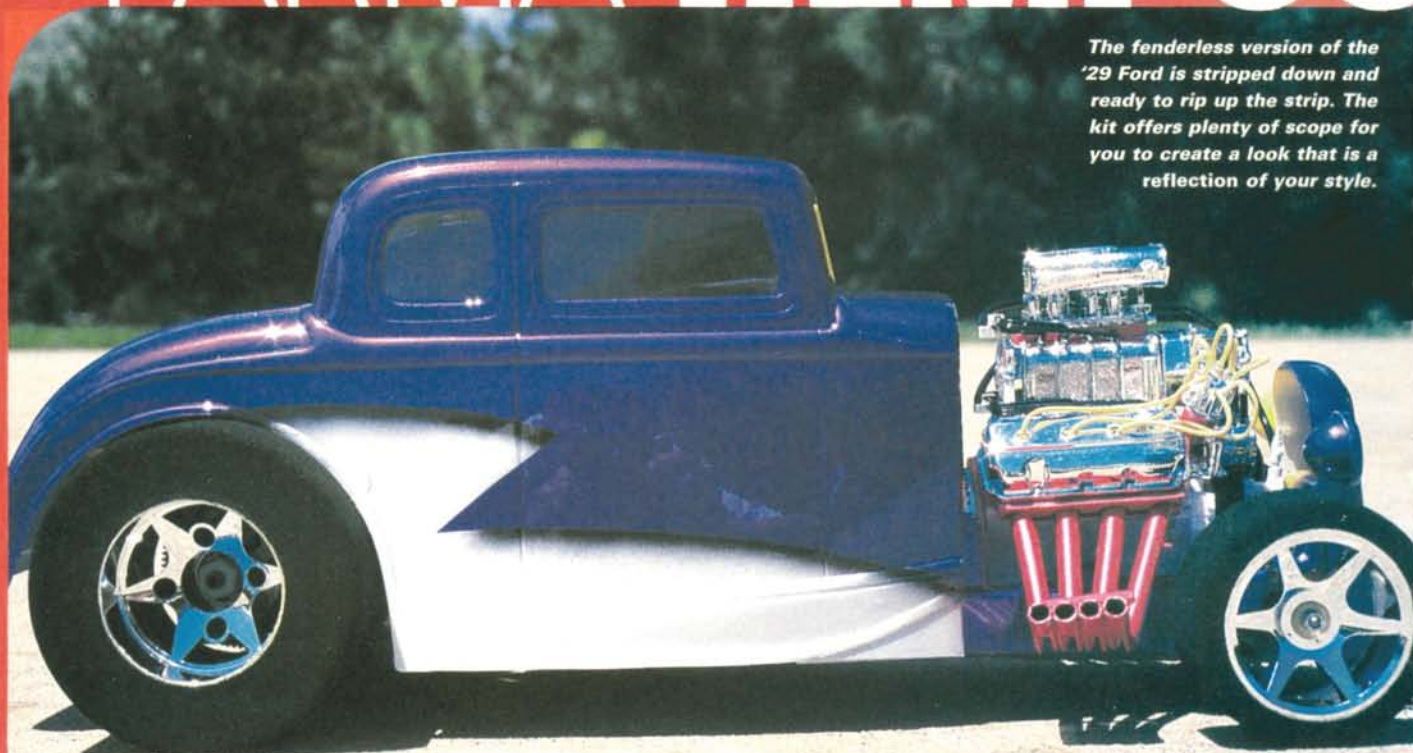
Superior hubs (pair)—B-01.

Green tire inserts (medium)—TU-31M.

Tires—TU34M.

Foam bumper—SV-51.

PARMA HEMI CO



The fenderless version of the '29 Ford is stripped down and ready to rip up the strip. The kit offers plenty of scope for you to create a look that is a reflection of your style.

PHOTOS BY KEVIN MEYER

RC's Hottest Hot-Rod

by Kevin Meyer

The Parma* Hemi Coupe 2—a redesign of the Hemi Coupe—is for avid model detailers who want a nostalgic hot-rod to customize. While most RC kits are all about a trick chassis, the Hemi Coupe 2 is really a body showcase. There's plenty of stuff to detail, and the paint possibilities are endless. Although it's also plenty of fun to drive, I'm sure you'll agree that it deserves to be sent straight to the display case. Let's take a peek under the hood. Oops, I forgot; there is no hood!



Chrome all over the place!

Parma didn't skimp on the plating; there are chrome goodies to add flash. If you can get over the heavenly Hemi, turn your eyes to the excellent reproduction of the '29 fendered Ford.

WHAT YOU GET

Under the classic Ford shell is Parma's Good Times chassis, so you know J.J. Walker is psyched. The simple construction and low parts count keep down price and assembly time. This car is definitely right for the drag strip—and, no doubt, a few racers will be tempted to run the 1/10-scale quartermile—but it's mainly intended to offer an inexpensive way to give a great-looking shell RC control.

■ **CHASSIS.** The main fiberglass chassis plate comes drilled to accommodate the front crossbar and rear aluminum motor pod. Slots on either side of the rear of the chassis allow the rear pod to flex and absorb bumps on the road. The battery is secured to the body's undertray with Velcro®-brand fasteners.

■ **FRONT END.** The suspension consists of a fiberglass crossbar with upright kingpins. The axle/spindle assembly rides on the kingpins and is cushioned by medium tension springs—standard pan-car stuff. Steering comprises prebent linkage rods that are connected by a collar-and-setscrew arrangement. The bellcrank is sandwiched between the crossbar and chassis plate; it pivots on the crossbar hardware and ties the steering linkage to the servo-saver. This setup allows the adjustment of toe-in.

■ **REAR END.** The stamped-aluminum motor pod is bolted directly to the chassis; it's rigid and acts as a heat sink for the motor. A sturdy steel axle rides on Oilite brass bushings. A direct-drive setup with ball differential on the spur gear is standard equipment on the Good Times frame. The kit doesn't include a pinion gear.

COUPE 2



If you like this torn-edge look, it's easy to do: just tear a strip of masking tape and then apply the paint. A misted "shadow" creates a 3D effect.



After I had applied Parma's "Scallops" mask (part no. 10784) to the coupe's left side, I sprayed on FasYellow (no. 40002) and then backed it with FasWhite (no. 40000) to brighten it up.

To create this one-of-a-kind design (inset), I used Parma's uncut masking sheet (no. 10799). After I had masked the area, I sprayed on a shadow, and this is where FasKolors shine. If you don't like your first attempt, just clean the paint off with a wet paper towel before it dries—and try again.



WATER-BASED LOWDOWN

I used Parma's water-based FasKolor paints throughout the car—on its engine and body. Parma has so far released more than two dozen new colors in this water-based formula. The paint comes in clear, 2-ounce bottles (so you can see the color as it will look when applied to Lexan), and the bottles have flip-top spouts for filling airbrush jars. FasKolors aren't toxic, so you can paint indoors without worrying about noxious fumes, but work in a well-vented area anyway; that's always a good idea.

You can apply the paint with an airbrush or a paintbrush. I used a Testor's Model Master dual-action airbrush, which works well for small detail work, custom fade jobs and even large areas, for which you can use its heavy tip. To get the best results with a paintbrush, allow plenty of drying time between coats, and to avoid ending up with brush marks, apply consecutive coats in opposite directions.

The paints are ready to use and don't need to be thinned, but they may thicken after the bottles have been opened. If paint collects on the end of the airbrush needle, the paint is too thick. Put it in a new container and add water, a few drops at a time, until you get the consistency you want.

When you've finished painting, clean the brush with water or use Parma's FasKleaner. If you use an airbrush, flush it out with water, then use FasKleaner for a thorough cleaning.

FasKolors take 24 hours to dry fully, but if you're impatient to move on, use a hair dryer to dry the paint enough to allow you to add the next coat. Allowing the paint to cure completely ensures that it will resist being chipped and scratched. I've used FasKolors on several bodies, and I've found them as durable as standard polycarbonate paints or even more so.

■ **BODY.** The beautifully detailed polycarbonate Ford body package gives you the option of creating a stripped hot-rod or one with fenders. The body is molded in three sections: cabin, front and rear fenders and nose clip. Running boards are available separately. A Lexan shelf holds the styrene hemi engine and supports the fenderless-style streeter. Each part has crisp, prominent trim lines. The grill pieces and headlight buckets are held in place on the bottom chassis pan with Velcro®. The kit arrives with great printed grill and headlight decals.

Parma's new Hemi Coupe 2 is ready to tear up the quarter-mile and looks good just standing still.

STYLIN' OUT A SUPER COUPE

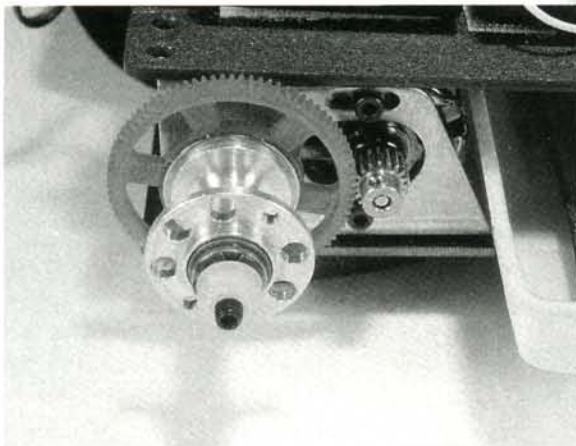
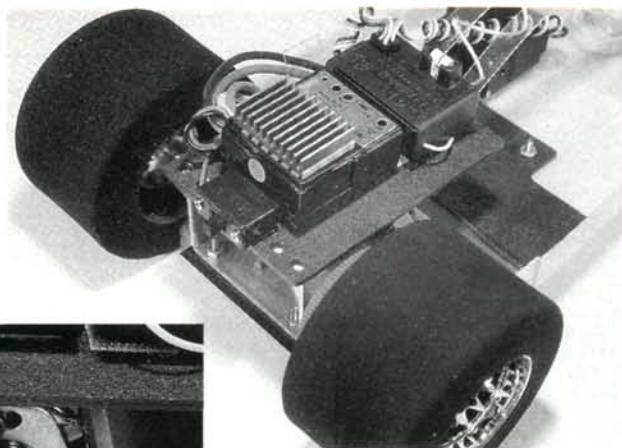
I started by washing all the body parts in warm water and liquid detergent and then thoroughly drying them with a clean paper towel. Trimming the body prior to painting is optional. I usually save trim work until last because it helps avoid having overspray on the outside of the body. But the new Faskolors are water-based, so overspray cleanup isn't a big problem. If you use another type of Lexan-compatible paint, it's a good idea to protect the outside of the body with plastic food-wrap.

Next, I applied the included, precut vinyl window masks. Parma offers a great selection of precut masks that will help anyone add that professional look to their paintwork as well as plain, uncut vinyl sheets that are great for those who want to create a truly unique look such as the one I have on the right of the coupe. Once the mask was in place, I sprayed on black shadows to give the graphics depth, and applied then three coats of white to cover the side. (Basic Lexan paint rules apply here.) Because I applied the lighter color first, I backed the white with two coats of Pearl Silver so the darker colors wouldn't show through. Then I laid down three even coats of Fasescent Purple. Again in accordance with Lexan-painting rules, I backed the purple with silver. This makes the color more opaque and brings out the sparkle in the metal-flake. On the other side of the coupe, I used Parma's precut "Scallops" mask. Three coats of yellow came next, followed by two backing coats of white. When the last coat had dried, I removed the mask carefully. Drying the paint with a hair dryer helps to seal it around the mask and ensures sharp edges when the mask is removed. I felt the scallops called for some classic fade work: starting at the back of the design, I sprayed on three coats of Fasescent Red to complement the engine parts. I faded three coats of Fasescent Blue into the red, then backed both colors with Pearl Silver.

The molded polystyrene-plastic hemi engine is detailed to the full, and it's the coupe's main attraction. Most of its parts are chromed and fit together flawlessly, but you might have to trim or sand off a little flashing here and there. The plastic requires enamel paint, but if you really want to use water-based paint, you can prime the engine's parts with a light-colored enamel such as Testor's white before you add any other paint. If you paint the parts while they're still on the parts tree, you'll find the job much easier.

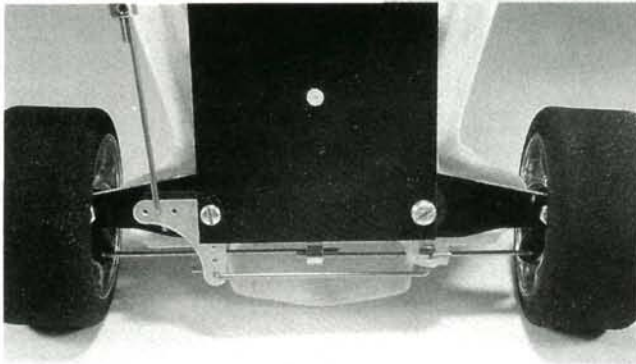
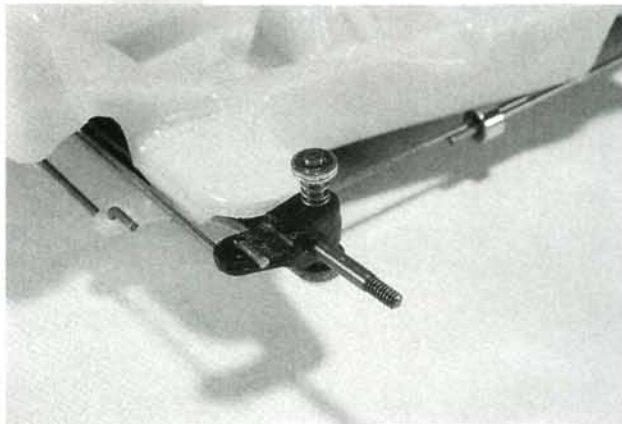
Finally, I painted certain parts with Faskolor Fasescent Red using a no. 1 paintbrush. Then add the engine wiring and you're ready to roll; it's that easy to create a great-looking engine.

Right: the plastic radio tray is attached to the rear of the aluminum motor pod. I used Velcro® to keep the ESC and receiver in place; it does the job well yet allows easy removal. The pod assembly is held on the flat chassis plate by four screws, leaving only the plump rear foams to serve as suspension.



Left: Parma's included Rocket Sprocket 48-pitch spur gear turns a steel axle through Oilite bushings. Lightweight aluminum hubs complete the rear assembly. The pinion gear is not included in the kit; I opted for a 16-tooth gear.

Right: once the servo and steering linkage are in place, you might have to do some extra trimming to make sure the body doesn't interfere with the linkage. Note that the steering arms have been installed backwards to accommodate the unusual bellcrank steering setup.



Left: music-wire linkages and a bellcrank steer the Hemi Coupe 2. The unusual arrangement allows the steering servo to be tucked out of sight. The assembly is simple, and toe angle is easy to adjust.

LIKES

- Detailed body.
- Window masks.
- Chromed wheels and motor.
- Simple assembly.
- Great display model.

DISLIKES

- No protective film on outside of body.
- Kit doesn't include pinion gear.

FINAL THOUGHTS

I had a hard time keeping my eyes off the '29 once it had been completed. For the avid modeler, this kit has it all. It's packed with chrome motor parts and has a perfectly replicated '29 Ford, five-window, coupe body. Nowhere else on the market can you find a scale hot-rod with such detail, and it's sure to be a great conversation piece when your buddies drop by. The staff at Parma should be proud of their continued success in bringing back the yesteryears for nostalgic rodders.

**Addresses are listed alphabetically in the Index of Manufacturers on page 265. ■*

PRO-LINE

Track Directory

FREE! Track owners! You can be included in this directory brought to you by Pro-Line. Just fill out the coupon on page 259.

YOUR 2000 TRACK GUIDE

ALABAMA

Beacon Point RC Raceway, 15717
Beacon Point Dr., Tuscaloosa, AL 35406;
Don, (205) 333-8679

Hobbystown USA Raceway, 450-O
Schillinger Rd., Mobile, AL 36608;
Rob & Kari Baker, (334) 633-8446

Lagoon Park R/C Raceway, 2730
Lagoon Park Dr., Montgomery, AL
36109; Alex Love, (334) 272-6438

Phenix Raceway & Hobby,
2006 Opelika Rd., Phenix City, AL
36867; Chris Watson, (334) 298-9786;
<http://www.xoom.com/PhenixHobby>

R/C Hi-Tech Raceway, 3303 Meridian
St., Huntsville, AL 35811; Rick
Chambers, (205) 539-1347.

R/C Thunder Tracks, 1530 Schillinger
Rd., Mobile, AL 36675; for mail, use
8125-2 Moffett Rd., Semmes, AL
36575; Jerry Hurst, (334) 645-2787

ALASKA

Fairbanks R/C Car Club, 510 Juneau
Ave., Fairbanks, AK 99701;
Dan Anderson, (907) 456-5494

ARIZONA

Hobbystown Mountain Raceway,
1500 E. Cedar Ave., Cedar Hills
Shopping Center, Flagstaff, AZ 86004;
Richard, (520) 214-9887

Hobbystown Raceway, 13802 N.
Scottsdale Rd., Scottsdale, AZ 85250;
(602) 948-3946

Hobbystown Raceway, 1915 East
Baseline Rd., Gilbert, AZ 85234;
Dennis, (602) 892-0405

Hobbystown Raceway, 1102 E. 22nd St., Tucson, AZ 85704;
(520) 882-8888

Hobbystown U.S.A., 5030 E. Ray Rd.,
Phoenix, AZ 85044; Linda McFarland,
(602) 598-5282

Kiwanis Park R/C Raceway, 855 S.
Magnolia Ave., Yuma, AZ 85364; Jim
Liggett, (520) 539-7148

**Quarter Flash's Squirtin' Dirt
Raceway**, 16301 S. Santa Rita #C,
Sahuarita, AZ 85629;
Dave, (520) 625-9274

R/C Sports Mania,
3550 N. 35th Ave., Phoenix, AZ 85017;
Brian Dick, (602) 278-3671

Scottsdale R/C Raceway, 3023 N.
Scottsdale, Scottsdale, AZ 85251;
Scott Anfinson, (602) 945-2186

Speedway Hobbies, 2710 N. Steve's
Blvd., Ste. 8, Flagstaff, AZ 86004;
Gary McAllister, (520) 714-1566

ARKANSAS

Alison Offroad RC Raceway, 6320
Thibault Rd., Little Rock, AR 72206;
Steve or Coop, (501) 490-1227

Arkansas R/C Car Association, 101 W.
52nd St., N. Little Rock, AR 72118;
William Byrd, (501) 753-1286

Airport Speedway,
1521 Airport Loop, Rogers, AR 72756;
Mike Dollar, (501) 636-7123

Grand Slam Superspeedway, 5300 S.
Zero St., Ft. Smith, AR 72901;
Bryon Shumate, (501) 648-1994

Hobby Town USA, 356 E. Joyce,
Fayetteville, AR 72703; Darrell Irvin,
(501) 571-3730

Sparks R.C. Raceway, 7194 Greene
721 Rd., Paragould, AR 72450;
Tommy Sparks, (501) 239-3606

CALIFORNIA

California R/C Raceway, 1230 N.
Kramer, Anaheim, CA 92806; Taka,
Sid, or Charlie, (714) 630-9300

Castle Hobbies, 14918 Camden Ave.,
San Jose, CA 95124; (408) 377-3771

Desert Hobbies, 28-401 Date Palm Dr.
Cathedral City, CA 92234; Mike Beall,
(760) 320-9442

Gooch Raceway & Hobbies, 1150 N.
Chevy Chase Dr., Glendale, CA 91206;
Devin Last (818) 562-2380,
fax (818) 242-0525

Hobby Central Raceway, 34255
P.C.H., Unit 107, Dana Point, CA
92629; John, (619) 513-0373

Hobby Central II Raceway, 13461
Community Rd., Poway, CA 92064;
John, (619) 513-0373

HobbyTown, Parktown Plaza Shopping
Center, 1350 S. Park Victoria Dr. #21,
Milpitas, CA 95035; (408) 945-6524

Hot Rod Hobbies, 25845 San
Fernando Rd., #21, Saugus, CA 91350;
Rod Weisbaum, (805) 255-2404

Jake's Performance Hobbies, 6650
Commerce Blvd. #21, Rohnert Park,
CA 94928; Jake, (707) 586-3375

Just for Fun R/C Raceway, 509
S. State St., Ukiah, CA 95482;
Don, (707) 462-7305

Lucerne Valley Raceway, 32800 Old
Woman Springs Rd. #4, P.O. Box
2047, Lucerne Valley, CA 92356;
Frank Rodrigue, (760) 248-7305

M n M Hobbies, 4225 Prado Rd., Ste.
103, Corona, CA 91720;
Joe Stanovich, (909) 272-3545

Nor-Cal Mini-Speedway,
519 Bush St., Woodland, CA 95695;
Steve Van Atta, (530) 668-5678

Racer's Haven Raceway, 7401 White
Ln. #12, Bakersfield, CA 93309;
Martin Buchanan, (805) 835-0441

Radio Control Products, 201 E.
Magnolia Blvd. #148, Burbank, CA
91502; Tab, (815) 846-4208

**Rams 1/8-scale Gas and 1/16-scale
Gas On-Road**, Mission College, Lot B,
3000 Mission College Blvd., Santa
Clara, CA 95054-1897; Steve Tsuruda,
(415) 675-5609

Rattlesnake Raceway, 16470 Benson
Rd., Cottonwood, CA 96022; Mel or
Mike Fisher, (530) 347-7215,
email: RC-gazer@webtv.net; website:
<http://members.xoom.com/CAR-RCORR/Race.html>

Rescue Mini Speedway, 4018 Green
Valley Rd., Rescue, CA 95672; Bruce
Pease, (530) 621-3948

Ripon R/C Raceway,
701 N. Acacia Ave., Ripon, CA 95366;
Dan Tanis, (209) 599-5160

Sacramento RC Racing and Hobbies,
6201 27th St., Sacramento, CA
95824; Andreas Muller,
(916) 424-4001, email:
andreas123@earthlink.net; website:
www.77sunset.com

Showtime R/C Speedway, 3709
Abbott Dr., Bakersfield, CA 93312;
Grant or Karen Kniffen,
(805) 589-0493

Simi Valley Groundpounders,
392 C - East Easy St., Simi Valley, CA
93065; Jack Kasten, (805) 584-8211

So. Cal R/C Raceway, 19118
Brookhurst St., Huntington Beach, CA
92646; Jim Blauvelt, (714) 963-7484

Speedworld Raceway, 90
Corporation Yard Rd., Roseville, CA
95678;
Billy Bowerman, (916) 783-8864

Tri-Valley Auto Racers, Livermore
Elks Club, 940 Larkspur, Livermore,
CA 94550; Mike Stone,
(510) 455-6833

Ultimate Hobbies, 2378 North
Orange Mall, Orange, CA 92865;
Cliff Murukami, (714) 921-0424

COLORADO

MHOR R/C Raceway, 15540 East
Batavia Dr., Aurora, CO 80011; Jess
Brockman, (303) 343-0151

Race of Champions R/C Speedway,
300 West 53rd Pl., Unit B, Denver, CO
80216; Dan DeWild, (303) 296-4908

Valley West Off-Road RC Club, 447
30 1/4 Rd., Grand Junction, CO
81504; Waymond Williams, (970) 242-
8846

CONNECTICUT

Central CT Auto Racers,
Davis Hobbies II, 45A Welles St.,
Glastonbury, CT 06033;
(860) 633-3056

East Lyme R/C Kar Klub, Society Rd.,
East Lyme, CT 06333; Howard Estorm,
(203) 483-9201

K/N R/C Speedway Inc., West St.,
Stafford Springs, CT 06076; for mail,
44 Clearview Rd., Moodus, CT 06469;
(860) 684-9896

Racing and Entertainment Center,
29 Olcott St., Manchester, CT 06040;
Peter Tierinni, (860) 643-4768

R/C Madness, 640 Enfield St.,
P.O. Box 64, Enfield, CT 06082;
Christopher Marcy, (860) 741-6501

Xtreme Radio Control, 469 Danbury
Rd., New Milford, CT 06776;
Paul or Pete, (860) 354-4703

DELAWARE

**The Hobby Outlet: Tracks of the
Outlet**, Salisbury Rd., Dover, DE
19901; Steve, (302) 697-8350

Hobby Stop Speedway, RD4, Box 100,
Rte. 13, Seaford, DE 19973; Remy
Haynes Jr., (302) 629-3944

FLORIDA

B&T RC Central, 811 Playground Rd.,
Ft. Walton Beach, FL 32547; Tim
Miller, (850) 863-1666

Broward County R/C Race Club,
Mills Pond Park, Ft. Lauderdale, FL; Ed
Decemberto, (954) 525-3304

Burton's R/C Raceway, 4215 Mustang
Rd., Lakeland, FL 33803; Louie Burton,
(941) 665-1322

Coral Springs Roadrunners, P.O. Box
9632, Coral Springs, FL 33075;
John Argentino, (954) 925-8284

Farmer's Hobby Shop & Raceway,
5006-3 E. Broadway, Tampa, FL
33619; Greg Cardone, (813) 248-3314

First Coast Speedway,
6410 Waltho Dr., Jacksonville, FL
32211; Bob Thompson,
(904) 743-2161

Frontier Race Track, 15260 N.E.
244th Ave., Salt Springs, FL 32134;
Harold Reel, (352) 685-2881

G & C Hobby Raceway,
1228 Hypoluxo Rd., Lantana, FL
33462; George, (561) 547-3812

Greater Orlando Auto Racers,
970 Keller Rd., Altamonte Springs, FL
32714; Rob Michael, (407) 834-9299

Hobby World Raceway, 7273 103rd
St., Jacksonville, FL 32210;
Greg, (904) 772-9022

Kissimmee R/C Auto Racing, Model
Craft World, Osceola Square Mall,
3831 West Vine St., Ste. 60,
Kissimmee, FL 34741; John Rosser,
(407) 944-4913; email: john@craft-
worldflorida.com; website: craft-
worldflorida.com

Means R/C Raceway, 150 Pondell
Rd., North Fort Myers, FL 33903;
Pete Gonzalez, (941) 772-2251;
email: jaimewootton@worldatt.net;
website:
<http://members.xoom.com/wootj>

Monster Hobbies, 616 Southeast
10th St., Deerfield Beach, FL 33441;
(954) 428-9118

**Morris Kohl's Raceway and Hobby
Shop**, 1202 W. Waters Ave.,
Tampa, FL 33604; Morris Kohl,
(813) 931-1626

My Rose, 1695 W. Indiantown Rd.,
Jupiter, FL 33458;
Mark Watson, (561) 744-3800

Key to Symbols

- Indoor
- Outdoor
- Off-road
- Oval
- Dirt oval
- Carpet
- Concrete
- Asphalt
- On-site hobby shop
- AC power
- Auto lap-counting
- Food available

NORRA, 3300 Santa Barbara Blvd., Naples, FL 34104; Dan Rodriguez, (941) 352-9021



Ocala Radio Controlled Car Club, P.O. Box 70166, 2610 SE 8th St., Ocala, FL 34470; Bonita Hansley, (800) 324-8882, ext. 250; email: staff@ORCCC.org, website: www.ORCCC.org



Paradise Speedway, Mile Marker 98.5 U.S. 1, P.O. Box 738, Key Largo, FL 33037; Joe Ravard, (305) 451-3707



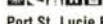
Paul's Stadium Raceway, 4511 W. Dr. M.L. King Jr. Blvd., Tampa, FL 33614; Paul Surette, (813) 872-8662



PBG R/C Motor Park, 6351 Barbara St., Palm Beach Gardens, FL 33418; Doug Gleason, (561) 743-9791 or Tim Case, (561) 627-2608



Pro Hobbies Speedway, 715 N. Lake Pleasant Rd., Apopka, FL 32712; (407) 886-4615



Port St. Lucie Racing, 3626 SW Rivera St., Port St. Lucie, FL 34953; Frank Spadavecchia, (561) 336-8711



Randy's RC Raceway, 7744 Glenwood St., Clermont, FL 34711; Randy Zimmer, (352) 242-0557



River City R/C Car Club, 9711 Sharing Cross Dr., Jacksonville, FL 32257; Bill Fraden, (904) 268-1948



Sarasota RC Speedway, 8475 Cooper Creek Blvd., University Park, FL 34201; Jim Wilson, (941) 358-7047



Sea Coast Watercraft and Hobby, 3119 Barrancas Ave., Pensacola, FL 32507; Vic Lakatos, (850) 457-1493



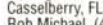
South Daytona R/C Raceway, 2121 S. Ridgewood Ave., South Daytona, FL 32119; Mike Bean, (904) 426-6481



South Palm Beach Racers, South County Regional Park, West Boca Raton, FL 33486; Mike Fazio, (561) 338-5367



Superior Hobbies R/C Parking Lot Racing, 430 E. Hwy. 436, Ste. #106, Casselberry, FL 32707; Rob Michael, (407) 834-9299



Tampa Bay R/C Club, P.O. Box 10224, St. Petersburg, FL 33733; Dick Gillette, (813) 526-0744



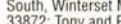
Tampa Hobbytown R/C 4 Slot Car Raceway, 15702 N. Dale Mabry, Tampa, FL 33618; Max and Judy Rosenroth, (813) 968-7233



Tropical R/C Raceway, Tropical Park, Miami, FL 33155; Pat Butler, (305) 772-4122



Warehouse Hobbies, U.S. Rt. 27 South, Winterset Motel, Sebring, FL 33872; Tony and Pam Castronova, (941) 699-1231



GEORGIA

Anthony's Victory Lane, 129 East Hwy. 80, Pooler, GA 31322; Anna Stephens, (912) 748-0847



Bullet Raceway and Hobby, 3735 Old Flowery Branch Rd., Oakwood, GA 30566; Mark Taaffe, (770) 534-9229



Dalton Raceway, 3036 Parquet Rd., Dalton, GA 30720; (706) 226-6699



Echeconnee Superspeedway, 2149 Richardson Dr., Macon, GA 31206; Andy Thompson or Cliff Kline, (912) 788-8731



Emerald City R.C. Speedway, Highway 40 East, East Dublin, GA 31021; Terry Cook, (912) 272-3856



The Flight Box Hobby Shop, 3134-C Rockmart Rd., S.E., Rome, GA 30161-6826; Leslie Duke, (706)-234-3014



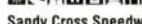
Hobby Town Raceway, 2301 Airport Thruway, Columbus, GA 31904; Frank Bastos, (706) 660-1793



Lake Mayer Raceway, 1430 Dale Dr., Savannah, GA 31406; (912) 598-9709



The Racer's Edge, 1530 Hwy. 19 N., Thomaston, GA 30286; Roger or Mark Walls



Sandy Cross Speedway, Rt. 1, Box 1071, Hwy. 51, Royston, GA 30662; Morris Phillips or Wayne Fowler, (706) 245-9573



Shiloh R/C Raceway, 6362 Shiloh Rd., Hahira, GA 31632; Doug Burnett, (912) 794-2507



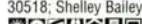
Silver Wings Raceway, 5611 Riverdale Rd., College Park, GA 30349; M. Bradshaw, (770) 991-2225



Stinger RC Super Speedway, 3769 Maysville, Rd., Commerce, GA 30529; Deric Sauls, (706) 335-5006 or (706) 335-9044



Sugar Bowl R/C Speedway, 5272 Nelson Brogdon Blvd., Sugar Hill, GA 30518; Shelley Bailey, (770) 945-6709



HAWAII

Garden Isle R/C Racers, 5855 Ahakea St., Kapaa, Kauai, HI 96746; Arnold Morales, (808) 823-0856



Kakaako Water Front Park Dragway, 98-029 Hekaha St., Bay #32, Alea, HI 96701; James Inkyo, (808) 487-5155



Maui R/C Racing Association, 230 Hana Hwy., Unit 11, Kahului, HI 96732; Garret or John, (808) 873-0376, (808) 893-0116, or (888) 646-6687



Pearl City Raceway, 98-029 Hekaha St., Bay 32, Alea, HI 96701; James Inkyo, (808) 487-5155



Radio Control Hawaii, 474 Kalanikoa St., S-104, Hilo, HI 96720; Glenn Shiroma, (808) 935-5629



Team PRC Racing Club, 176 Mamo St., Hilo, HI 96720; Charlie Kawamoto, (808) 935-3561



IDAHO

Almota Ranch Speedway, 1732 Eldridge Ave., Twin Falls, ID 83301; Casey Clements, (208) 733-8219



Capital Dirt Burners, 1612 Latah, Boise, ID 83705; Jim Small, (208) 433-1631

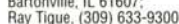


Dirt Stuff Plus, 5344 N. Yellowstone Hwy., Idaho Falls, ID 83401; Brian Krah, (208) 522-7576

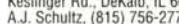


ILLINOIS

Adams R/C Raceway, 7201 S. Adams, Bartonville, IL 61607; Ray Tighe, (309) 633-9300



AJ's Raceway & Hobby, 10211 Keslinger Rd., DeKalb, IL 60115; A.J. Schultz, (815) 756-2772



C.I.R.C.A., 905 Bibbs St., Jacksonville, IL 62650; Sport 'n' Hobby, (217) 245-1375



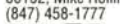
C&R Hobbies, 39 E. Jones, Millford, IL 60953; Ray Craighead, (815) 889-4073



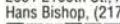
Depot Hobby Raceway, 180 S. Seminary St., Galesburg, IL 61401; (309) 342-9323



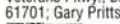
H & H Hobbies and Raceway, 9346 Virginia Rd., Lake in the Hills, IL 60102; Mike Hollingsworth, (847) 458-1777



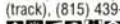
Hans' RC Race Place, 2051 2100th St., Atlanta, IL 61723; Hans Bishop, (217) 648-2915



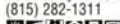
HobbyTown Raceway, 2103 N. Veterans Pkwy., Bloomington, IL 61701; Gary Pritts, (309) 664-4451



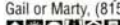
Leisure Hours R/C Raceway, 24121 W. Theodore, Bldg. 1, Plainfield, IL 60544; Scott Hill, (815) 439-1777 (track), (815) 439-1477 (shop)



Machesney Park, 1220 Shappert Dr., Machesney Park, IL 61115; (815) 282-1311



Marty's R/C Hobby, 1335 E. Broadway, Bradley, IL 60915; Gail or Marty, (815) 933-8441



Monroe R/C Raceway, 26049 Ridgeland Ave., Monroeville, IL 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 799-5597 (office)



Outlaw R/C Speedway, 1614 Broadway, Mattoon, IL 61938; (217) 234-6229



Pontoon Raceway, 3670 St. Rte. 111, Granite City, IL 62040-4304; Pat or Skip, (618) 931-1206



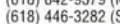
Quad Cities Radio Raceway, 541 1st Ave. North, Silvis, IL 61282; Tom Bedwell, (309) 751-9663



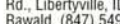
Radio-Active Raceway, 751 N. Bolingbrook Dr., #15, Bolingbrook, IL 60440; Jim, (630) 759-7557



Rector's R/C Raceway, RR 3, Box 104, Albion, IL 62806; Tim Wolfe, (618) 842-9379 (M-F), (618) 446-3282 (Sun.)



RMR Raceways, 19091 West Casey Rd., Libertyville, IL 60048; Ron Rawald, (847) 549-6963



Shiloh Eagles Superspeedway, 308 N. Virginia Ave., Belleville, IL 62220; (618) 277-6030



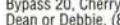
SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901; (618) 549-5885



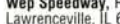
Stanton Hobby Shop, 4718 N. Milwaukee, Chicago, IL 60630; Kevin Kane, (773) 283-6446



Valley Farms R/C Raceway, 706 Bypass 20, Cherry Valley, IL 61016; Dean or Debbie, (815) 332-4516 or (815) 547-5984



Wep Speedway, RR #2, Box 44, Lawrenceville, IL 62439; Bill Poe



INDIANA

Bremen Racing Ent., 308 N. Bowen, Bremen, IN 46506; Dale Heuberger, (219) 546-3807



The Dirt Yard, 1117 W. Epler Ave., Indianapolis, IN 46217; Keith Dudas, (317) 786-6417



GM Raceway, 1651 W. Franklin St., Elkhart, IN 46516; Pete Russell, (219) 293-1827



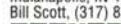
Hardesty R/C Raceway, 11 East Plymouth St., Hamlet, IN 4653; Max Hardesty, (219) 867-8600



Hobby Barn Raceway, 1950 Springhill, Terre Haute, IN 47802-9694; (812) 299-5773



Hobbytown U.S.A., 5385 E. 82nd St., Indianapolis, IN 46250; Bill Scott, (317) 845-4106



Nitro R/C Speedway, 4310 West 400 South, Danville, IN 46122; John Webber, (317) 539-4413; email: nitrorc1@aol.com



P&T Hobbies and Raceway, RR 2 (Hwy. 60), Mitchell, IN 47446; Paul Weber or Tom Logsdon, (812) 849-6666; email: pntohobby@bigfoot.com



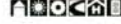
Race Street Hobbies, 1126 1/2 Race St., New Castle, IN 47362; Jim Burke, (765) 521-4888



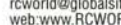
RC Barn, 310 N. 125 W., Monroe, IN 46772; Mark Lengerich, (219) 692-6600



R/C World of Indiana, 2246 West U.S. Hwy. 36, Lynn, IN 47355; Joe Kolp, (765) 874-2464; e-mail: rcworld@globalnet.net; website: www.RCWORLD.com



R/C Mania, 8 Wood Ct., Hebron, IN 46341; Ron Trobaugh, (219) 996-6288 (shop); (219) 762-5365



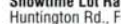
The Rink, 7900 Whitcomb, Merrillville, IN 46410; Don Reiner, (219) 769-8113



Showtime Lot Racing, 606 Lower Huntington Rd., Fort Wayne, IN 46815; Mike Romines, (219) 478-6099



Summit Area Radio Cars (SARC), 7000 Red Haw Dr., Fort Wayne, IN 46805; John Kissel, (219) 492-2271



IOWA

Delb's Speedway, 423 11th Ave. So., Clinton, IA 52732; Rusti's Miniatures and Hobbies, (319) 243-2697



Dubuque R/C Speedway, Dubuque County Fairgrounds, Dubuque, IA 52001; Paul Conlon, (319) 556-2736



Hobby Haven, 7672 Hickman Rd., Des Moines, IA 50322; Rick Marble, (515) 276-8785



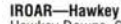
Inside Challenge, 2028 Main St., Keokuk, IA 52632; Jessie, (319) 524-2225



Iowa City R/C Racing Association, Johnson County Fairgrounds, Bldg 6, 3149 Old Highway 218 South, Iowa City, IA 52246; Hobby Corner, (319) 338-1788; fax (319) 356-6509; track is fully covered by roof



IROAR—Hawkeye Downs Raceway, Hawkeye Downs, 6th St. S.W., Cedar Rapids, IA 52404; Dave Kleinschrodt, (319) 556-8524



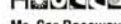
Manly R/C Club, Box 23 (Hwy. 65), Manly, IA 50456; Bruce Hill, (515) 454-2025



Marble's Raceway, 4685 SE 40 St., Des Moines, IA 50317; Rick Marble, (515) 262-7507



Mr. Car Raceway, P.O. Box 1112, Central Iowa Fairgrounds, Marshalltown, IA 50158; Jim Gossett, (515) 483-2234



Outback Speedway, 403 State St., Guthrie Center, IA 50115; Helens Enterprises, (515) 747-3064



Radio Control Raceway Park, 2100 First Ave. N., Fort Dodge, IA 50501; Bernie Halverson, (515) 576-3780



Riverside Raceway, Veteran's Park, Algona, IA 50511; Mike Beisch, (515) 295-9352



Indy Speedway & Hobby,
3753 General DeGaulle Dr.,
New Orleans, LA 70131;
Vince Sheetz, (504) 367-1891

POC

Pontchartrain Hobby Shop, 3755
Pontchartrain Dr., Slidell, LA 70458,
(504) 649-1199

POC

MAINE

Clay Bowl R/C Hobbies, P.O. Box 61,
Greene, ME 04236;
Pat Cap, (207) 946-5003

POC

R/C Speedway & Hobbies,
87 Main St., Fairfield, ME 04963;
David Prescott, (207) 453-4588

POC

MARYLAND

Doug's Raceway, 2935 Crain Hwy.,
Waldorf, MD 20601;
Doug Moran Jr., (301) 843-6220

POC

Hobby Town USA, 8223-11 Elliot Rd.,
Easton, MD 21601;
Bill Dyke, (410) 920-9308

POC

J.R.'s Race Place, 2935 Crain Hwy.,
Waldorf, MD 20601;
James Radford, (410) 947-2766

POC

Outback R/C Race Club, Maiden Ln.,
Manchester, MD 21102; Randy or
Bonnie Henry, (410) 374-2878

POC

The Track, 16806 Oakmont Ave.,
Gaithersburg, MD 20877;
Mimi Wong, (301) 417-9630

POC

MASSACHUSETTS

Big Boys Toys, 40 Father Davol Blvd.,
Fall River, MA 02721; (508) 677-9400

POC

C&C Hobby & Raceway, 562 Russells
Mills Rd., So. Dartmouth, MA 02748;
Charlie, (508) 997-4131

POC

Hi-Tech Hobbies, 1681 Broadway
(Rt. 138), Raynham, MA 02767;
Ruben, (508) 880-5373

POC

Megadrome Raceway, Rt. 8, Curran
Hwy. North Adams, MA 01247;
Bob Blanchette, (413) 743-7223

POC

Northboro Speedway, 168 Main St.,
Rte. 20, Northboro, MA 01532;
Bob Trimble, (508) 393-8087

POC

MICHIGAN

D.R. R/C, 22789 Northline Rd.,
Taylor, MI 48180; Bobby or Fred,
(734) 287-7405

POC

Freedom Hill R/C Raceway, 35372
Wellston, Sterling Heights, MI 48312;
Jim McKenna, (810) 268-3996

POC

Great Lakes R/C Racer's Club, 632
Plymouth Ave. NE, Grand Rapids, MI
49505; (616) 948-9798 or (616) 948-
9814;

email: Gr8LksRacers@aol.com,
www.members@aol.com/grtlksrcrw/
index.html

POC

Hobby Hub, 5859 M99, Diamondale,
MI 48821; Verne Goebble,
(517) 337-9278 or (517) 351-5843

POC

Jon's Hobby, 4739 E. Pickard, Mt.
Pleasant, MI 48858; Jon Beutler,
(517) 773-5412

POC

JT Superspeedway, W. Golden Ave.,
Battle Creek, MI 49015;
Jerry or Sam, (616) 965-0116

POC

Larry's Performance R/Cs, 43665
Utica Rd., Sterling Heights, MI 48314;
Larry, (810) 997-4840

POC

Lazer RC Speedway, 2858 N.
Wilmoth Hwy., Adrian, MI 49221;
Russ Johnson, (517) 263-2806

POC

Motor City Speedway, 1602523, mile,
Rd., Macomb Township, MI 48042;
Gary Cornwell, (810) 677-2470

POC

N.M.R.C.C. Raceway,
Hobby Toy Lot, Main St., Gaylord, MI
49735; Ed Schneider, (517) 732-3963

POC

Ovalt's R/C Speedshop, 3920 N. U.S.
31 S., Traverse City, MI 49684; Jim
Ovalt,

(616) 947-6670

POC

R.A.C.E. Inc., 3227 Mathews,
Jackson, MI 49203;
Sam Sprang, (517) 787-9161

POC

Raw Roots Race Tracks, 14623 East
Croswell, 1/4 mile north on 152nd (off
U.S. 31), West Olive, MI 49460; Roy
Bennink, (616) 399-9338

POC

R&L Hobbies & Racing, 9782 Portage
Rd., Kalamazoo, MI 49002; Rex
Simpson, (616) 323-3686;
fax (616) 329-1744

POC

Rodgers R/C Raceway, 7463 Ridge Rd.,
Britton, MI 49229; George Rodgers,
(517) 451-8301

POC

Superior R/C Raceway, 160 S. County
Road 553, Lot 173, Gwinn, MI 49841;
Frank Felster, (906) 346-7225

POC

Thumb Raceway, 3441 Main St.,
Marlette, MI 48453;
Jim Wilson, (517) 635-7848

POC

Vicksburg Off-Road R/C Raceway,
50201 Silver St., Vicksburg,
MI 49097; Tim, (616) 323-7963

POC

T.J.'s RC Raceway, Rt. 2, Box 22C,
Luther, MI 49656; Tod Smart, (616)
797-8035

POC

Village Hobbies-n-Crafts, 195 N. Elm,
Hesperia, MI 49421;
Alan or Fran, (616) 854-1374

POC

Village R/C Raceway,
Prairie Ronde St., Decatur, MI 49045;
Chuck Nolke, (616) 423-7878

POC

Washtenaw R/C Raceway, Ypsilanti,
MI 48198; Jim Rousseau, (734) 395-
5048

POC

Willis Outdoor R/C Racetrack, 13922
Oakville-Waltz Rd., Willis, MI 48191;
Mike Higgins, (734) 587-2012

POC

MINNESOTA

Bemidji R/C, 1015 Miles Ave. S.E.,
Bemidji, MN 56601; Russ or Ryan,
(218) 751-1629

POC

Car Town USA, 2822 Piedmont Ave.,
Duluth, MN 55811; Roger Deloach,
(218) 727-6248

POC

Central RC, 1620 Central Ave.,
Minneapolis, MN 55330;

Doug Ringold, (612) 781-1640

POC

Country R/C Raceway Park, 24214
325th St., Belview, MN 56214-8115;
Charles L. Steff, (507) 641-8115

POC

Duey's Hobbies & R/C Raceway, 6600
Cahill Ave., Inver Grove Heights, MN
55076; Duey Carlson, (612) 450-1721

POC

Grand Rapids R/C Speedway, 2209
Hwy. 2 East, Grand Rapids, MN 55744;
Aaron Voges, (218) 326-6751

POC

Granite City R/C Speedway, 3555
Shadowwood Dr. N.E., East Hwy. 23,
Sauk Rapids, MN 56379; Brett
Donahue, (320) 251-6980

POC

J's Radio Control Race Park, 22994
290th Ave., Starbuck, MN 56381;
Jay Campbell, (320) 239-4827

POC

Kevin's Private Off-Road Raceway,
702 So. Washington Ave., Crookston,
MN 56716-2317; Kevin Altepeter, (218)
281-7491; email:

kevinlsc@crookston.polarisnet.net;

www.kevinlsc.bizonline.net (note: registra-

tion required for permission of use)

POC

Northwoods Hobby Raceway, 2638
Hwy. 25 North, Brainerd, MN 56401;
Tom Grogg, (218) 829-9257

POC

Ray's Raceway Park, 105 3rd Ave. NE,
Glenwood, MN 56334;
Dan Winter, (320) 634-5246

POC

R/C Racing World, 235 Main Ave. North,
Harmony, MN 55939;
Mark McKay, (507) 886-5931 or
(507) 886-2224

POC

Red Barn RC Raceway, Rt. 4, Box 333,
Mankato, MN 56001; Rusty Weiss,
(507) 345-8972

POC

Southside Speedway, 2241 Marion
Rd. SE, Rochester, MN 55904;
Kevin Guy, (507) 281-3233

POC

Time R/C Raceway, 20 West Lake St.,
Chisholm, MN 55719; RV,
(218) 254-4321

POC

MISSISSIPPI

Joe McFaden Hobbies, 5531 Fox
Meadow Dr., Meridian, MS 39307;
Joe McFaden, (601) 483-7000

POC

Small Cars Unlimited, 820 Cooper Rd.,
Jackson, MS 39212; (601) 372-FAST;
www.smallcarsunlimited.com

POC

MISSOURI

All Seasons Hobby, 29 O'Fallon
Square, O'Fallon, MO 63366; Bob
Daniels, (314) 281-8767

POC

B&L Hobbies & Raceway, 2800
Anchor Dr., Park Hills, MO 63061;
Bob Marler, (573) 431-9444

POC

Fire Mountain Raceway, 8647
Commercial Blvd., Pevely, MO 63070;
Dan Gordon, (314) 475-6449

POC

Greentree R/C Racepark, St. Louis
Dirt Burners R/C Club, Marshall Rd.,
Kirkwood, MO (314) 831-2194

POC

Hobbies 'N Stuff Raceway, 204 Mall
Pkwy., Wentzville, MO 63385;
Tim Satchwell or Crandall Olds,
(314) 327-6006

POC

North Missouri Raceway, 223 Graves
St., Chillicothe, MO 64601; Billy
Johnston, (660) 646-1120

POC

Ozark Mountain Speedway, Rt. #2,
Box 50, H-Highway and County Rd. 31,
Noel, MO 64854; Clayton Younker,
(417) 475-6222

POC

Ozarks R/C Raceway, Hwy 13N,
Brighton, MO 65781; Gene Rhodes or
Ron Hawkins, (417) 742-4376 or
(417) 742-7223

POC

Real Blue Vue Speedway, 12019 E.
47th St., Kansas City, MO
64133;

Mark Randol, (816) 358-0238

POC

Real R/C Raceway, 24204 State Rt.
58, Pleasant Hill, MO 64080;
Steve Hale, (816) 540-5584

POC

MONTANA

Stormer Raceway & Slot Motorplex,
P.O. Box 126, Hwy. 2 East, Glasgow,
MT 59230; (406) 228-4569

POC

NEBRASKA

Goodyear Speedway and Off-Road,
4021 North 56th, Lincoln, NE 68510;
Tom or Bob, (402) 464-5172

POC

Hadar R/C Raceway,
55192 849th Rd., Norfolk, NE 68701;
John Schoenauer, (402) 644-7922

POC

Hobby Town USA Raceway, N. 1st St. &
Cornhusker Hwy., Lincoln, NE 68508; Ben
Smith, (402) 434-5056

POC

Mr. Bill's, 450 West 2nd St., Hastings,
NE 68901; Bill J. Ries, (402) 462-4865

POC

O.N.R.O.A.D., 3307 N. 58 St., Omaha,
NE 68104; Cook Jacobs,
(402) 556-8674

POC

OTWG Carpet Raceway, 55129 849th Rd., Norfolk, NE 68701;
John Schoenauer, (402) 644-7922

POC

RC Motorsport Off-Road Raceway,
5600 Mass Rd., Papillion (Omaha),
NE 68133; Marty Stepanek,
(402) 593-6133

POC

Salvation Army South Corps, 4032
Harrison St., Omaha, NE 68164;
(402) 734-3414; fax (402) 734-3415

POC

T & T Raceway, 476 26th Ave., Columbus,
NE 68601; Tom,
(402) 564-9216

POC

The Speed Zone, 1524 Atokad Dr., South
Sioux City, NE 68776;
Rob Murdock, (712) 428-4679,
or Jim Carson,
(712) 274-7731

POC

Wacha's R.C. Speedway, 1823 23rd St.,
Columbus, NE 68601; Tom Smith,
(402) 564-9216

POC

NEVADA

Bill's Hobby Shop, 1000 N. Nellis Blvd.,
Las Vegas, NV 89110; Bill Schultz, (702)
531-3282; website:

www.billshobbyshop.com

POC

Dansey's Indoor R/C & Hobbies,
741 N. Nellis, Las Vegas, NV;
David Lugo, (702) 453-RACE,
(888) 675-8963; www.danseys.com

POC

Lizard Raceway, P.O. Box 1248, Verdi, NV
89439; Jeff Griffin, (702) 345-6573

POC

NEW HAMPSHIRE

Axis Racing R/C Dragway,
4197 High St., Exeter, NH 03833;
Dan Peterson, (603) 659-4877

POC

Economy R/C Speedway, 4 Maple St.,
Winchester, NH 03470; Harold Thomas,
(603) 239-4482 or 239-6470

POC

North Haverhill R/C Racing, Main St., N.
Haverhill, NH 03774; Shelly White, 111
Golf Links Rd., Wells River, VT 05081;
Todd White, (802) 757-2579

POC

Robert's Railroad & Hobbies, 1335 1st
NH Turnpike—Rt. 4, Northwood, NH
03261; Robert M. Jeffers Jr.,
(603) 942-5193

POC

RT 106 Racepark, 743 Clough Mill Rd.,
Pembroke, NH 03275;
Fred Farwell, (603) 224-RACE

POC

NEW JERSEY

American Raceway,
142 Wilson Ave., Englishtown, NJ 07726;
Doug Venner, (732) 446-3737;
email

Foothills R/C Speedway, 3200 Chestnut St., Oneonta, NY 13820; Dave Osterhoot, (607) 432-5098

FRONT TOWN

Frog Town Hobbies, Rt. 37, Mini Pines Village, Hogsburg, NY 13655; Dennis White, (518) 358-3686

HACK'S HOBBIES & RACEWAYS

120 Cayuga St., Canal View Mall, Fulton, NY 13069; Jack LaTulip, (315) 598-7063

JERRY'S RACEWAY

111 S. Applegate Rd., Ithaca, NY 14850; Jerry and Lori Achilles, (607) 277-0940

LI 1/4-SCALE RACERS, 63 Horton Dr., Huntington Station, NY 11746; (516) 351-5384

LONG ISLAND RACEWAY, 168 Broad Hollow, Farmingdale, NY 11735; James, (516) 845-7223; www.raceway.com

MTW RACEWAY, 11930 Johnny Cake Hill Rd., Cato, NY 13033; Wade, (888) 39-HOBBY

PERFORMANCE PLUS RADIO CONTROL

Speedway/The Hobby House, 1141 1/2 Jones & Gifford Ave., Jamestown, NY 14701; (716) 488-1772

P.R.O. SPEEDWAY, 5 Washington St., Cattaraugus, NY 14719; Marc Pritchard, (716) 257-3101

RADIO HILL RACEWAY, 1219 Shannon Corners Rd., Dundee, NY 14837; Bill Brewer, (607) 243-8641 or Greg Areford, (607) 243-7899

RAMPAGE R/C & HOBBIES, 782 Rt. 9G, Rockledge Plaza, Hyde Park, NY 12538; Brian Walker or Kevin Bobb, (914) 229-1379

R/C COMPETITION CORNER, 2202 Brewerton Rd., Mattydale, NY 13211; Lori and Cos Cirriello, (315) 455-8718

SILVER STATE R/C CLUB, Centennial Park, Carson City, NY 89501; (702) 853-3953

SOUTHERN TIER RACEWAY, 88 Paige St., Owego, NY 13827; Anita Harding, (607) 687-5395

SOUTH SHORE HOBBY & RACEWAY, 464 East Main St., Patchogue, NY 11772; Benny or Bonnie, (516) 758-5567

TRI COUNTRY REMOTE CONTROL CAR CLUB, 33 West Decker St., Johnstown, NY 12095; Tom Leville, (518) 725-1279

TARMAC—ULTIMATE R/C RACEWAYS, 2830 Mountain View Rd., Poughkeepsie, NY 12603; Todd, (914) 342-5409; Greg, (914) 528-5084; trackside, (914) 454-8276; www.tarmacraceway.com

WALT'S HOBBY, 2 Dwight Park Dr., Syracuse, NY 13209; (315) 453-2291

WESTFIELD R.C. SPEEDWAY, 27 Clark St., Westfield, NY 14787; John or Jared Lindstrom, (716) 326-2339; 716-326-2309

WHITESTONE, 30-56 Whitestone Expy. (Dept. of Motor Vehicles), Flushing, NY 11374; Rudolf Ardilla, (718) 966-6155

WILLIS HOBBIES R/C SPEEDWAY, 300 Willis Ave., Mineola, NY 11501; Ken Ford, (516) 746-3944

ZOAR ROAD SPEEDWAY, 15318 Armes Ct., Gowanda, NY 14070; David & Gordon Ackler, (716) 532-9463

NORTH CAROLINA

A&J R/C Models, 2051 Anthony Rd., Burlington, NC 27215; Jerry Loye or Andrea Thompson, (336) 227-4556; fax (910) 227-1001

THE ANTIQUE BARN, 1801 Forest Hills Rd., Wilson, NC 27893; (252) 237-6778

ATLANTIC COAST R.C., 8-A Lockhead Ct., Greensboro, NC 27409; Charlie Higgins or Harry Johnson, (336) 664-1277

BADIN SHORE RACEWAY, 1730 Jackson Lake Rd., High Point, NC 27263; Jimmy or Tim Martin, fax (910) 431-6407

C/C HOBBY SPEEDWAY, 8358 U.S. Hwy. 220 Bus. N., Randleman, NC 27317; Steve & Mary Cox, (910) 495-3482

C/W R/C SPEEDWAY, 1297 Charlotte Hwy., Asheville, NC 28730; Billy or Tim, (828) 684-0061

CAROLINA DRAGWAY, 1555 Turkey Hwy., Clinton, NC 28326; (910) 592-9489

CHATHAM R/C RACEWAY, 326 Reno Sharpe Store Rd., Bear Creek, NC 27207; Dwight Fields, (919) 898-2991

GREEN FLAG R/C RACEWAY, 107 Harley Rd., Wilmington, NC 28401; Mike McElmore, (910) 452-1620

R & D SPEEDWAY, 418 Main St., Tarboro, NC 27886; John Dupree, (919) 823-2294

RISE & SLIDE R/C RACEWAY, 5319 Yadin Rd., Fayetteville, NC 28303; Bill Culbertson, (910) 867-4202

RADIO JOCKEY'S PARKWAY, "RJ's," Rt. 9, Box 651, Fay, NC 28301; www.wave-net.net/mshutt; Tony Starling, (910) 486-4820

R.C.R. SPEEDWAY, 1415 Henderson Grove Church Rd., Salisbury, NC 28147; Ronnie Linker, (704) 637-2565

ROSEWOOD R/C SPEEDWAY, 651 Community Dr., Goldsboro, NC 27530; Glenn Elam, (919) 731-4734

SOUTHERN RC MOTORSPORTS CLUB, Hwy. 17S., P.O. Box 1651, Shallotte, NC 28459; Mark Whitt, (910) 754-4902 or Eddie Ferster, (910) 754-8528

YOUNGVILLE R/C CLUB, 6516 NC 96 Hwy. W., Youngsville, NC 27596; James Ray, (919) 556-0446

NORTH DAKOTA

Northern Mini Racers, 1000 36th St. S.E., Minot, ND 58702; Mike, (701) 838-5818

RIVER CITY R/C, 2714 Main Ave., Fargo, ND 58103; Chris Hughes, (701) 235-1272

OHIO

AK HOBBY AND RACEWAY, 3826 North Bend, Cincinnati, OH 45211; Tim Tolle, (513) 661-7080

AMERICAN OHIO SPRINT CAR, 1708 Empire Rd., Wickliffe, OH 44092; Gary Waldhelm, (440) 944-9966

CLASSIC HOBBIES, 1994 E. Waterloo Rd., Akron, OH 44312; Walt Ellis, (330) 733-6400

CORCAR/SAMS CLUB, 128 Amity Rd., Galloway, OH 43119-8732; Bill Stevenson, (614) 870-7159

Columbus R/C Racing Club (C.R.C.R.C.), Franklin County Fairgrounds, Hilliard, OH 43026; Jeff Crowell, (614) 236-1783

D&J R/C RACEWAY, 801 W. Market St., Orrville, OH 44667; Don Yoder or Mark Nussbaum, (330) 682-4266

FULL THROTTLE RACEWAY, 600 Mt. Moriah Dr., Cincinnati, OH 45255; Bill Dolch, (513) 943-9009 or via pager at (513) 730-1073

GLASS CITY RADIO CONTROL, 2620 Ivy Pl., Toledo, OH 43613; Frank Johnson, (419) 472-1286

GREENTOWN R/C RACEWAY, 3353 Perrydale, Greentown, OH 44630; Chuck Lambert, (330) 364-6585

HOBBSY SHOP RACEWAY, 2096 Miamisburg Centerville Rd., Centerville, OH 45459; The Hobby Shop, (937) 436-6161

HOBBSY WORLD, 3499 SR 59, Ravenna, OH 44266; Tom Fry, fax (330) 296-0894

J & L R/C RACEWAY, 5342 W. St. Rt. 718, Troy, OH 45373; Mike Wegman, (513) 521-3408; email: wegs@one.net

LAFFERTY R/C RACEWAY, Box 153, 70228 Hurrah St., Lafferty, OH 43951; Chris Christman, (740) 968-4818

MID AMERICAN RACEWAY, 13150 Airport Hwy., Swanton, OH 43586; Bill or Chuck, (419) 475-9459

NOTHING BUT AIR R.C. TRACK, 34632 True Rd., Logan, OH 43138; Gary Lloyd, (740) 385-0288

SHIRAY'S HOBBY & RC RACEWAY, 19930 State Route 117, Waynesfield, OH 45896; Ray Zimmerman, (419) 568-8055

TARCAR, 7216 Nebraska Ave., Toledo, OH 43617; Bill Bridges, (419) 826-3859

VAN WERT R/C RACEWAY, 144 E. Main St. (above Hoverman Music), Van Wert, OH 45891; Mark Davis, (419) 232-2112

Y-CITY HOBBY & SPEEDWAY, 120 S. 6th St., Zanesville, OH 43701; Kevin McKenna, (674) 455-3025

OKLAHOMA

Adams Creek R/C Speedway, 5207 S. 194th E. Ave., Broken Arrow, OK 74014; John Beighle, (918) 355-1416

COMPETITION R/C, 100 S.E. 89th, Oklahoma City, OK 73149; James or Louise Brown, (405) 634-0809

ENID R/C SPEEDWAY, 1821 S. Van Buren (Hwy 81), Enid, OK 73701; Bob, (580) 233-3444 or (580) 234-7666

WILD COUNTRY SPEEDWAY, 127 S. Main, Porter, OK 74454; Charles McCollough, (918) 685-0372 or (918) 687-1686

OREGON

Competition Racing Association, 17941 N.E. Gleason, Portland, OR 97230; Mark Taylor, (503) 761-1334

D.I.R.T. R.O.A.D. Club, 65540 73rd St., Bend, OR 97701; Daleyne and Edward Giletz, (541) 388-2932 or (800) 475-6040; ext. 777 (at 2nd dial tone, enter ext.); email: blue@coinet.com

R/C Plus Hobbies Raceway, 1857 25th St. S.E., Salem, OR 97302; Ron Smith, (503) 364-9188

R/C Speed Center, 2810 N. Pacific Hwy., Medford, OR 97501; Gene and Betty Jean Skelton, (541) 779-8298

ROSE CITY SCALE RACING, Highway 224, K-Mart parking lot, Milwaukie, OR 97222; Rick Strauss, (503) 631-2929

YAMHILL COUNTY R/C CAR CLUB, 722 Morgan Ln., McMinnville, OR 97128; Larry Rucker, (503) 472-7234

PENNSYLVANIA

B&B Raceway, 1301 Pine St., Berwick, PA 18603; Ray Berry Jr., (570) 759-3469

COURTVIEW RACEWAY, 20 S. Main Street (lower level), Washington, PA 15301; Aaron Stimmell Jr., (724) 225-4302

DC Ultra Trax, 13 York Rd., Wycombe, PA 18974; David Cowan, (215) 672-5200

DREAMBOAT HOBBIES, 2810 Pennsylvania Ave. W., Warren, PA 16365; Louie Dussia, (814) 723-8052

KOONTZ'S HOME & HOBBY CENTER, 1205 Hoover St., Pittsburgh, PA 15204; (412) 331-3866

Kranzel's R/C Raceway & Hobbies, 415-B Bosler Ave., Lemoyne, PA 17043; David or Stuart Kranzel, (717) 737-7223

Little Plum R/C Hobbies, RR 1, Box 330, Lock Haven, PA 17445; Larry Duck, (570) 769-1984

Lugnut Raceway, 1713 Bethlehem Pike, Hatfield, PA 19440; Bill Henning or Kathy Anderson, (215) 822-5831

Marshall's R/C Raceway, RR 4, Box 640, Honesdale, PA 18431; Bill or Dot Marshall, (570) 729-7458

McCullough's Offroad, 108 Callen Rd., Sarver, PA 16055; Doug McCullough, (724) 352-0116; email: DMCCull323@aol.com

The Mushroom Bowl, 960 W. Cypress St., Kennett Square, PA 19348; Bruce or Drew, (610) 444-1850

Pinion Twisters, 3M Plant, Green Ln. and Mitchell, Bristol, PA 19007; Mark, (215) 632-2344 or Tony, (215) 742-3560

Pit Stop Hobbies, 262 W. Main St., Mount Joy, PA 17552; James Stoudt Jr., (717) 653-6222

Prop & Wheels Raceway, 139 W. Broad St., Tamaqua, PA 18252; Gil Walters, Prop & Wheels Hobbies, (570) 668-2288

Racers Edge R/C Racing, RR#1, Box 271, Smethport, PA 16749; Rick Morgan or Johna Simar, (814) 887-2269; email: morgan@penn.com; web: users.penn.com/~morgan/track.html

The Raceway at River Junction, 1216 4th St. (behind cemetery), Beaver, PA 15009; (724) 728-5571

RC Ave. Raceway, 324 McKinley Ave., Latrobe, PA 15650; Scott Smith, (412) 537-5501

RC Outfitters RCO Raceway, 519 Broadway, Hanover, PA 17331; Chris Shaffer, (717) 633-9490; http://rco.webjump.com

R/C Pro III, 910 Chestnut St., Coal Twp. (Shamokin), Shamokin, PA 17866; John Swisher, (570) 648-7763

Riverside Raceway, Penna. Ave. W. & Hickory, Warren, PA 16365; Jeff, (814) 723-4211

S.A. Hi Banks, Hahn's Dairy Rd., Palmerton, PA 18071; Scott Andrews, (610) 826-4583

Somerset Hobby Shop Outlet, 4309 Glades Pike, Somerset, PA 15501; Bob Rhodes, (814) 445-6214

Staub Bros. R/C Speedway, 31 Locust St., Gettysburg, PA 17325; Todd or Scott Staub, (717) 334-5445

TNT Raceway, Randolph Rd., Great Bend, PA 18821; Frenchie, (607) 775-1750 or Ed Kraft, (570) 967-2604

Trains & Lanes Raceway, 3825 Northwood Ave., Easton, PA 18045; Jeff Setzer, (610) 253-8850, (800) 447-4891

Willow Mill Speedway, 37 N. Season's Dr., Dillsburg, PA 17019; George Verbowitz, (717) 432-4445

World A.T.L.A.S./P.A.R.C.E. R/C Raceway Hobby Shop & R/C Club, Chester Exchange Mall, 10th & Morten St., Chester, PA 19013; Darryl, Lee or Marc, (610) 874-2540

PUERTO RICO

Area 51 On Road Track, Carr 931 KM 1.5, Bonavarró, Gurabo, PR 00745; (787) 739-1572

Cidra R/C Track, Carr 7787 KM 1.6, Bo Beatriz Adentro, Cidra, PR 00739; Humberto (Tito) Lizardi, (787) 739-1572

Dorado Offroad R/C Track, Pista Atletica Bo. Higüillar, Dorado, PR 00646; Roberto Lamoso/Jaime Ramos, 796-5603 or (809) 796-1734

Hacienda Muñoz R/C Track, Carr. #14, Juana Diaz, PR 00795; (809) 837-7083

Hi-Speed C Raceways, 422 San Claudio Ave., San Juan, PR 00926; Carlos Ortiz, (787) 283-0198

Isabela R/C Track, 390 Sur Guaynabo, PR 00969; Fernando Salcedo or Alvaro Obregon, (787) 720-1176

RHODE ISLAND

Tri-State R/C Raceway, 205 Hallene Rd., Warwick, RI 02886; Raymond Dean, (401) 738-4908

SOUTH CAROLINA

Atlantic World of Hobbies, 2458 Remount Rd., North Charleston, SC 29406; Jimmy Closson, (843) 554-3546

Bethany Motor Speedway, 959 Wilmoir Rd., Clover, SC 29710; Eddie Spearman, (803) 222-4758

Carolina R/C Speedway, 4148 Calhoun Memorial Hwy., Easley, SC 29640; Craig Prah, (864) 295-1209; www.carolinarc.com

Darlington R/C Raceway, Hobbies & More, 1570 S. Main St., Darlington, SC 29532; (843) 393-0355

Extreme R/C Raceway, 5976 Grace Ln., Myrtle Beach, SC 29577; Kevin Bullock, (803) 236-2083

The Grove Racing Center, 939 S. Anderson Rd., Rockhill, SC 29730; Mike Durham or Don Faris, (843) 327-4121

HOBBIES AND MORE

Hobbies and More, 1570 S. Main St., Darlington, SC 29532; Jerry Pollard, (803) 393-0355

J&M R/C HOBBIES

5341 Dorchester Rd., Evanston Plaza, N. Charleston, SC 29418; Mike Smith, (803) 552-9449

ORA Atomic Racing Facility

373 Boyd Pond Rd., Aiken, SC 29803; Bill Jackson, (706) 855-0846 or (803) 642-0314

Skateland USA

202 Hwy. 29, Anderson, SC 29621; Jon Fulmer, (864) 225-1840; touring cars only on asphalt and oval

SOUTH DAKOTA

Action R/C Raceway

107 N. Main, Mitchell, SD 57301; (605) 996-6895

Boomerangs Raceway

105 N. Main, Hartford, SD 57033; Ed Smithback, (605) 528-7345

Dakota Off-Road Racers

2989 W. Br. Co. 12, Aberdeen, SD 57401; (605) 226-0604

Goldtrax Raceway

409 E. High, Lead, SD 57754; Steve Brown, (605) 584-2355

Tri-State R/C Club

Sioux Empire Fair Grounds, Sioux Falls, SD 57105; Chad Walth, (605) 357-9654; email: losman@email.msn.com

R/C Action Raceway

SE Corner at 484th & Hwy. 38, Sioux Falls, SD 57105; Brian Cox, (605) 373-0511

TENNESSEE

D&M's Downtown Raceway, 2703 U.S. Hwy. 411S, Maryville, TN 37303; (423) 681-8919

Futrell's R/C Hobby Shop

1715 Jackson Ave., Seymour, TN 37865; Dan Futrell, (423) 908-9526

Hobby Town USA

2000 Mallory Ln., Franklin, TN 37067; Bobby Mills, (615) 771-7441

MID-South Racing Association

9155 Hwy. 72 (Poplar Ave.), Germantown, TN 38138-7903; (901) 757-8774

R & R Racing Portable Track

RR3, Box 34, Linden, TN 37096; Ross or Ron, (931) 589-5433

TnT Raceway

643 Loop Hollow Rd., New Tazewell, TN 37825; Cliff Swett, (423) 869-8942

W.O.W. Raceway

59 Luray Rd., Beech Bluff, TN 38313; Kelly Bean, (901) 427-7874; email: windx60@pipeline.com

TEXAS

215 Speedway, 1814 County Rd. 215, Abilene, TX 79602; Clyde Gardner, (915) 673-2351

B&B R/C Hobbies

700 East 4th, Big Spring, TX 79720; Walter Bumbulis, (915) 263-1790

Big Mike's R/C Raceway

1405 W. Cotton St. (behind the Locker Room), Longview, TX 75604; (903) 297-7814

Comanche Trail RC Park

City Park, Big Spring, TX 79720; Allen Nichols, (915) 263-4241

Discount Hobbies, 1722A West Anderson Loop, Austin, TX 78757; Tony Bermudez, (512) 458-2324

Drycreek Raceway

5903 Co. Rd. 2297, Quinlan, TX 75474; Micky Alphin, (903) 883-4060

Eastex Raceway

45000 Hwy. 59 N., New Caney, TX 77357; Brent Mahaffy, (713) 399-9777

Finish Line Raceway

2775 N. Hwy. 360, Ste. 637, Grand Prairie, TX 75050; Steve Manning, (817) 652-3340

Hal's Hobby Raceway

1440 Bessemer, El Paso, TX 79936; (915) 591-2213

Hobbytown USA

999 E. Basse Rd., Ste. 177, San Antonio, TX 78209; Joe Sena or Clark Baisdon, (210) 829-8697; fax (210) 829-8707

Issac's Race Track

18177 Gulf Frwy., Houston, TX 77598; Issac Ben-Ezra, (281) 488-8697

MBRC Off-Road Raceway

204 D&E Valley Ln., Kennedale, TX 76060; Mike Battaile, (817) 563-1900

Mammoth R/C Racing

4221 Spencer, Pasadena, TX 77504; John, (713) 946-2522

Mike's Hobby Shop Superstore and Raceway

1605 Crescent Cir., Carrollton, TX 75006; (972) 242-4930; www.mikeshobbyshop.com

Performance Raceway

1106C Witte Rd., Houston, TX 77055; Jorge Tabush or Terry Schmid, (713) 464-4458

Rev It Up Raceway Practice Track

3076 Keller Rd., Smithville, TX 78957; Rev. Alton T. Edwards, (512) 237-5903

Rick's R/C Raceway

238 Scenic Loop, Boerne, TX 78000; Rick, (210) 981-2245 or Rich, (210) 590-1805

Star/Car Raceway

5802 Patton St., Corpus Christi, TX 78415; Glen Stead, (512) 949-8525; Race Hotline, (512) 881-6105

T&T Eagle

3420 Ave. K, Suite 154, Plano, TX 75074

Joe Sullivan, (972) 633-2470

Texas Speedway

6707 Chimney Rock, Bellaire, TX 77401

T.O. Offroad Raceway

6236 Quail, El Paso, TX 79924; Efrén Saenz, (915) 821-7522

Warehouse Radio Controlled Raceway

5119 Plains Blvd., Amarillo, TX 79101; Craig or Darren Waddell, (806) 356-9080

W.E.S. Hobby Race

980 S. Fourth St., Beaumont, TX 77701; Edmond Richards, (409) 839-4929

UTAH

Intermountain R/C Raceway, 8481 W. 2700 S., Magna, UT 84044; David Mott, (801) 250-8303;

Payson R/C Raceway

Payton, UT 84651; Gus Wood, (801) 224-3852 and Lasca Wood, (801) 222-8677

Vision Hobby

352 N. State St., Orem, UT 84057; Ken Rice, (801) 226-6226

Trainlano R/C Racing

5661 Shoulders Hill Rd., Suffolk, VA 23435; Frank Stevens, (757) 488-5454

WOR R/C Raceway

3170 Brinker Ave., Ogden, UT 84401; Brian Worton, (801) 393-2530

VERMONT

Barre Town R/C Club, 14 S. Main St., Wall St. Complex, Barre, VT 05641; Russ Tribble or Pete Perreault, (802) 888-2860 or (802) 476-9458

Bradford R/C Racing

Main St., Bradford, VT 05033; Seth Bean, (802) 222-9674

Empire Hobbies Off-Road Raceway

272 North Main St., Saint Albans, VT 05478; Scott or Jen, (877) 4-HOBBIE; email: mpirhobe@togethr.net;

Stoughton Pond Raceway

Stoughton Pond Rd., Perkinsville, VT 05151; Rick Adams, (802) 263-9321

VIRGINIA

Brad's Hobbies, 1105 Greenville Ave., Staunton, VA 24401; Brad, (540) 885-3642

Brown Brothers Hobbies

924 N. Main Street, Dumfries, VA 22026; Joel or Bob Brown, (703) 221-5746

Cooper's R/C Race Center

4000 Sago Rd. (969), Chatham, VA 24531; Norris Cooper, (804) 724-7342 or (804) 724-4182; website: http://coopersrc.virtualave.net

DRCW Raceway

Debbie's RC World, 2200 Commerce Pkwy., Virginia Beach, VA 23454; Les Modlin, (757) 340-6681

Gloucester Scale Hobbies

2352 George Washington Memorial Hwy., Hayes Plaza, Hayes, VA 23072; Rob Thein, (804) 642-3484

Hampton RC Speedway

1920 E. Pembroke Ave., Hampton, VA 23663; Steve Long or Mickey Kern, (757) 723-1884; website: www.fortunecity.com/olympia/norman/26/

K & W Hobby and Sports

5186 Nine Mile Rd., Richmond, VA 23223; Ross Martin, (804) 737-3904

KC's Radio Control & Repair

Rt. 4, Box 312, Trents Ferry Rd., Lynchburg, VA 24503; Curtis or Kim Wright, (804) 384-8596

Olde Towne Hobby Shoppe

9105 Center St., Manassas, VA 22110; Arnie Levine, (703) 369-1197

Race World Hobbies

6102 Lakeside Ave., Richmond, VA 23228; Larry Boyd, (804) 553-8040

The Racer's Edge

1230 West Main St., Danville, VA 24541; Al Harville, (804) 792-6011; email: webmaster@theracersedge.virtualave.net; http://theracersedge.virtualave.net

Roadmasters/Rick's Hobbies

12201 Falls Ford Ave., Manassas, VA 22110; Rick, (703) 330-6833

Shamroc Raceway

106 Cheviot Pl., Stephens City, VA 22655; Scott Janow, (540) 869-3551; note: track is located in Winchester, VA

Thunder Road R/C Racing

P.O. Box 1022, Troy, VA 22974-1022; James Palmer, (804) 589-8174

The Tiltyard

6994 Tiltyard Dr., Dayton, VA 22821; (540) 828-3476; www.tiltyard.com; tiltyard@rica.net

Trainlano R/C Racing

5661 Shoulders Hill Rd., Suffolk, VA 23435; Frank Stevens, (757) 488-5454

WASHINGTON

A-Main Raceway, 14011 N.E. 3rd Ct., Vancouver, WA 98685; Monty Coleman, (360) 571-8404

Bear Creek Raceway

6319 Maltby Rd., Woodinville, WA 98072; Nathan Brockway, (425) 398-0140

Burien Toyota R/C

15025 1st Ave. South, Seattle, WA 98148; Ray Meek, (800) 654-6456

Cedardale Raceway

1673 Cedardale Rd., Mount Vernon, WA 98273; Joe Madonia, (360) 659-0072; email: getchell@halcyon.com

Four Seasons R/C Racing

2941 Sleater Kinney Rd. N.E., Olympia, WA 98506; Gary and Sharon Brown, (360) 491-2430

Hank Perry Raceway

1901 N. Sullivan Rd., Spokane, WA 99023; Thom Mullins, (509) 928-2009

Hannegan Speedway

4212 Hannegan Rd., Bellingham, WA 98225; Dana Hoggarth, (360) 734-4090

Race City

125 E. Main St., Auburn, WA 98002; Craig Haslebach, (253) 939-2515; trackside (253) 939-2515

SARCAR Club

700 Renton Village Pl., Renton, WA; Darylene Dennon, (425) 483-8210

Schmidt's Auto Parts

10305 Old Hwy. 99, Marysville, WA 98271; Jon Failla, (206) 653-8838

Spokane Indoor Raceway

6422 E. 2nd Ave., Spokane, WA 99212; Dave Mapston, (509) 534-7432

Tacoma R/C Raceway

6305 6th Ave., Tacoma, WA 98406; Scott Brown, (206) 565-1935

Tearor Raceway, Fantasy World Toy and Hobby

7901 S. Hosmer, Tacoma, WA 98408; Dave Kleinman, (206) 473-6223

Ultimate R/C Raceway

907 Cole St. #3, Enumclaw, WA 98022; Dan Daugherty, (360) 802-2388

West Coast Hobby & Raceway

2239 Stevens Dr., Richland, WA 99352; Darren Shank, (509) 375-4995

Zep's Hobbies & Raceway

530 Interlake, Moses Lake, WA 98837; Steve Ralph, (509) 765-8191

WEST VIRGINIA

Burr-Fab Raceway, 90 Davis St., West Union, WV 26456; Mark Travis, (304) 873-2487

Fulton's R/C Raceway

2646 Chapline St., Wheeling, WV 26003; James Fulton, (304) 233-5355

Left Turn Hobbies

100 Saco Ln. (by Post Office), Glen White, WV 25849; Stretch, (304) 255-3930

Race Zone

Hopewell Rd., Rt. 8, Box 343A, Fairmont, WV 26554; Joe Clutter, (304) 368-1000

WVRCA R/C Club

142 W. Main, Bridgeport, WV 26330; D.W. Weed

WISCONSIN

ABC R/C Inc. & Raceway, 244 W. Main St., Waukesha, WI 53186; Dick Mathiesen, (414) 542-1245

Gary's Hobby Center

3701 Durand Ave., Racine, WI 53403; Bill Phalen, (414) 554-8884

Heart of the Valley R/C Club, 1330 Midway Rd., Menasha, WI 54952; Bill Morgan, (920) 954-1695

Hobbytown USA

2061 South Koeller, Oshkosh, WI 54901; (414) 426-1840

Hobbytown USA - Revolution

Memorial Mall, 3347 Kohler Memorial Dr., #D2, Sheboygan, WI53081; Kenny, (920) 452-0801

JJ's Dirt Heaven Hobby and Raceway

6028 County Rd. K, New Frankville, WI 54229; dirt heaven@msn.com; Jeff Jansen, (920) 866-9096

Mid-West Tri-Clone

3745 Shuster, West Bend, WI 53095; Tom Holz, (414) 334-0429

Pro-Star Racing

726 Pine St., Green Bay, WI 54301; Chuck, (920) 494-1233 or Terry, (920) 469-5566

Revolution Raceway

Memorial Mall, 3347 Kohler Memorial Dr., #D2, Sheboygan, WI 53081; (920) 452-0801 or (800) 594-9420

R.J.S./R.C.

4920 Hwy 70W, Eagle River, WI 54521; Randy Stys, (715) 479-2541

S&N's Trackside Hobbies and Raceway

6045 N. Green Bay Ave., Milwaukee, WI 53209; Scott Ernst, (414) 351-1910

WYOMING

Collectable Creations Off-Road Oval Track, 1790 Dell Range Blvd., Cheyenne, WY 82009; Phil Severson, (307) 632-2156

Wind River R/C Racing Association

Lakeside R/C Racing Car Club,
Hollywood Dr., Lansvale, NSW 2166;
R. Bartolozzi, 62-2-907-9800
[Icons]

Melton Electric Circuit Car Association, Salfrey Car Park, corner High St. and Coburns Rd., Melton, VIC 3337; Arthur Joslin, 61-3-9747-8805
[Icons]

Northern Districts Model Rally Club, Inc., Rear Stanford Centre, 16 Stanford Way, Malaga, Western Australia 6066; G. Thirlwell, 61 (9) 249 3855; fax 61 (9) 249 4778; email tony@ois.com.au
[Icons]

Penfield R/C, DSTO Complex Salisbury, Adelaide, South Australia 5108; Trevor Unsworth, 618 8289-5010
[Icons]

R.C. Speedway, 259 King St., Newcastle, NSW 2300; Andrew Dillon-Smith, 02-49265966
[Icons]

Templestowe Flat Track Racers, Templestowe Reserve, corner of Porter St. and Williamsons Rd., Templestowe, Melbourne, Victoria 31066; Renato Benci, 61 (3) 9553 4625
[Icons]

Wodonga R/C Car Club, 11 Murphy St., Wodonga, VIC 3690; Ron Langman, 61-60-247-128
[Icons]

AUSTRIA

RM-C-Wien, Aspernstrasse 5, Vienna, A-1220; Herbert Holze/Martin Hrzak, +43-664-4730376
[Icons]

BELGIUM

ATR-Alka-Tele-Racing, 3570 Stationstraat 21, Aiken Limburg; 0032-11-25-49-03
[Icons]

Cartroubles Indoor Buggy Track, Jan Moonsstraat 52-56, 2160 Wommelgem; Guy Ermes, 32-3-326-51-15; fax 32-3-326-51-01
[Icons]

MBV-Kampenhout, Teniersin 28, Kampenhout 91910; Frank Mostrey, phone/fax 0-16-65-75-18
[Icons]

MRCZ, Centrum, De Burg; Montie, 75-71-63
[Icons]

Model Racing Club Oudenaarde, Scheldekant, 9700 Oudenaarde; A. Chanterle, 32-55-31-36-48; fax 32-55-30-19-12
[Icons]

R.C.R., Peilstraat 43, Retie 2470; A. Elen, phone/fax 32-14-379685
[Icons]

BRAZIL

Amoc Cassociacao de Modelismo B. Camborio, Junto ao Par Que Ecologico de Bal. Camborio, Bal. Camborio, S.C. 88.330-000; Leo Cesar, (047) 366-0001
[Icons]

Brasilia R/C Motor Circuit, Estacionamento do Estadio Mane Guarninha, Brasilia, DF 70000; Alexandre (Alex), 55-061-273-7205
[Icons]

C.A.A.R. Curitiba Associacao de Automodelismo Radiocontrolado, Rua Theodoro Makioka, 2300 Santa Candida, Curitiba, PR 82650-530; Ronaldo Assumpcao, 55-41-354-2804
[Icons]

Electric Car Club R/C Santos, Av. Bernardino de Campos, 227, Santos, SP 11065-001; Esteveam or Arnaldo, 55-013-232-2536
[Icons]

Hamilton Neto Associacao RC, Rua Uterere 259, Curitiba, Paran 80380-400; Danico Pilhax, 55-41-338-8041; hammer_usa@hotmail.com
[Icons]

Hobby Center, SQS.210 BLH Apt. 204, Brasilia, DF 70.273; 061-242-0488
[Icons]

Hobby Center, SQS.210 BLH Apt. 204, Brasilia, DF 70.273; 061-242-0488
[Icons]

Hobby Planet Racing Club, Rod Dom Pedro 1, KM 1315, Campinas, Sao Paulo 13091901; Daniel, Helio, Luciano, 019 258 2768
[Icons]

Jungle Drive, Rua Alberto Maranhao, No. 219 Icha do Gov. Rio de Janeiro, 21940-490; Paulo Brito, (021) 396-0851 or (021) 393-7449
[Icons]

MP Raceway, Av. Nacoes Unidas, 6815 Lapa, Sao Paulo; Gerd Heitrotter, 55-11-9819039; www.hpraceway.com.br
[Icons]

Off Roaders, Av. Guilherme Dummont Villars, 317, Sao Paulo, CEP 05640; Waldir Ielpo, (055) 011-260-5628; fax (055) 011-831-4931
[Icons]

Way of R/C Off-Road Cerrado, Rua Paraila 1323, 1st floor, Belo Horizonte, Minas Gerais; Claudio T. Correa, (031) 227-6111, fax (031) 227-6869
[Icons]

CANADA

Action Weelz, 462 Turcotte, Vanier, Quebec, G1M 1R6; Regent Tardif, (418) 527-5756
[Icons]

Advance R/C Raceway, 4181 Sheppard Ave. E., Scarborough, Ontario M1S 1T3; Albert Lau, (416) 321-8377
[Icons]

A&J Toronto R/C Raceway, 24 Main St., Bldg. B, Unionville, Ontario L3R 2E4; (905) 305-1479
[Icons]

The All New R.C. World, 2633 Hwy. #6, Mt. Hope, Hamilton, Ontario L0R 1W0; Dave, (905) 765-2301, Larry, (905) 333-3297 or Brian, (519) 752-0044
[Icons]

ATN, Auto Teleguidee Nicolet, 2000 Rue Paul Hubert, Saint-Jean-Baptiste-de-Nicolet, Quebec J3T 1E5; Louis Durand, (819) 293-6097
[Icons]

Auto Sprint, 6065 Des Grands Prairies, St. Leonard, Quebec H3G 2R6; David Kalayjian, (514) 287-3503
[Icons]

Blew Bye You Raceway, 134 Dike Rd., Chilliwack, British Columbia V2P 5B1; (604) 792-8978
[Icons]

Circuit J.C., 1283 Chemin, St. Philippe, St. Polycarpe, Quebec J0P 1X0; Jean Castellon, (514) 265-3675
[Icons]

Circuit Pepsil, Centre de Location, 37 du Roi, Sorel, Quebec; (514) 746-8828
[Icons]

Circuit Plessis, 260 Rang 9 Ouest, Plessisville, Quebec G6L-2Y2; (819) 362-3743
[Icons]

Circuit R/C Pro, 1500 Chemin Sullivan, Val d'Or, Quebec; J9P 1M1; R/C Modeler Plus, (819) 874-3918
[Icons]

Circuit Teleguide St. Roch, 363-B St. Charles, St. Roch De L'achigan, Quebec J0K 3H0; (514) 588-4254, fax (514) 588-6554
[Icons]

Circuit Teleguide Grand Prix II, 701, Sainte-Rose, Ste. 200, Laprairie, Quebec, J5R 1Z2; (450) 444-1286
[Icons]

Club Auto Teleguides, 1750 Miesse Interprovincie, C.P. 35, Pointe-Fortune, Quebec, J0P1N0; Jacques St. Alevis, (514) 451-0078
[Icons]

Club Avatt, 244 Jules-Richard, Deauville, Quebec J1N 3; Daniel Vanier, (819) 864-6262
[Icons]

Club RCSI, 44 Rue Holliday, Sept-Iles, Quebec G4R; Sylvio Gerard, (418) 968-6575; Hobby Shop, (418) 962-6565
[Icons]

CRCCC, Box 309, Clinton, Ontario N0M 1L0; Eric Russell, (519) 482-9429
[Icons]

CTG, 450 Chemin de la Grand Ligne, Granby, Quebec; (514) 358-4419
[Icons]

CTL, 495 Industriel, Longueuil, Quebec; (514) 358-4419
[Icons]

Dustickers R/C Raceway, 1785 Cypress Rd., Quesnel, British Columbia V2J 4B1; Darrell Dinsdale, (250) 747-2680
[Icons]

Dynamic Hobbies, 21 Concourse Gate, Unit 6, Nepean, Ontario, K2E7S4; Clark Freeman, (613) 225-9634
[Icons]

East Coast Model Center Raceway, 13 Glen Stewart Dr., Ste 1, Southport, Prince Edward Island C1A 8X9; Gary Stephen, (902) 569-3262
[Icons]

Fast-Trax Speedway, RR 4, Trenton, Ontario; Russ McPeak, (613) 394-6411
[Icons]

Fly'n Bryan's Radical Raceway & Little Shop of Hobbies, RR #1, Ste. 12, Comp. 49, Chase, British Columbia V0E 1M0; Bryan Coffey/Dani Potvin, (604) 955-0669
[Icons]

Gilles Coitois, 1458 Boul. Lafleche, Bale-Comeau, Quebec G5C 1E1; (418) 295-1830
[Icons]

Hobby 2000, 75 St.-Jean-Baptiste, Ste. 140, Chateaugay, Quebec J6J 3H6; Hagues-Andre Meloché, (450) 698-2000
[Icons]

Honda House Motor Speedway, 384 Richmond St., Chatham, Ontario N7M 1P9; John Elliot, (519) 354-5530
[Icons]

Interior R/C Raceway, 34-1605 Summit Dr., Kamloops, BC, V2E 2A5; Martin Vankeuvenhuizen, (604) 374-1268 or (604) 374-8458
[Icons]

J-T International Raceway, 127 Milligan Ln., Nanapan, Ontario K7R 8A1; N. O'Neill, (613) 354-0099
[Icons]

Leading Edge R/C Speedway, 731 Gardiners Rd., Kingston, Ontario K7M 3Y5; Mike and Tony Daicar, (613) 389-4878
[Icons]

Mid-Canada R/C Speedway, 216 Hutchings, Winnipeg, Manitoba R3H 0L3; Richard Driedger, (204) 339-6566
[Icons]

Miniatures & Passions, 204 St. Charles, #103, Ste. Therese, Quebec J7E 2 B4; Gilles Lachance, (514) 979-7989
[Icons]

MORRAC Raceway, 6449 Crowchild Tr. S.W., Box 36060, Calgary, Alberta T3E 7C8; (403) 254-1386
[Icons]

Off-Road R/C Raceway, 76 Eddystone Ave., North York, Ontario M3N 1H4; Ron Lefebvre, (416) 740-0536
[Icons]

Prince George Radio Controlled Car Club, 202 Explorer Cres., Prince George, B.C. Y2M5R8; Doug Waller, (604) 561-0035
[Icons]

Quintrax Speedway, 610 Dundas St. East, Belleville, Ontario K7K 2M1; (613) 962-1414; fax (613) 962-7306
[Icons]

Randy Shantz Raceway, 1015 W. 14th St., North Vancouver, British Columbia; Steve Mulhaur, (604) 945-3888
[Icons]

R/C Champ Raceway, 670 Progress Ave., Rear Unit #13-16; Scarborough, Ontario M1H 3A4; Ben, Matthew or Louie, (416) 289-8717
[Icons]

Recreation R/C Raceway, Hwy. 16 and Ferry Ave., Prince George, BC; Doug Waller, (604) 561-0035
[Icons]

Ronbo's R/C Racing, R.R. 1, Glen Walter, Cornwall, Ontario K6H 3G4; Ron Giroux, (613) 936-0176
[Icons]

Rousillon Hobby Track, 177-D St. Jean Baptiste, Chateaugay, Quebec J6K 3B4; (514) 698-2151
[Icons]

Shadtree Raceway, R.R. #4, 22566 Stage Rd., Thamesville, Ontario; Darrin Charbonneau, (519) 692-5211
[Icons]

Snye Wreck RC, R.R. #1, St. Regis, Quebec H0M 1A0; Aimee Mitchell, (613) 575-2496
[Icons]

South Muskoka R.C. Track & Mini Putt, 8903 Hwy. 11, Orillia, Ontario L3V 6H3; Justin Fortin, (705) 329-0397
[Icons]

Spinnin Wheel Raceway, RR 1, Ariss, Ontario NOB 1B0; (519) 824-1614
[Icons]

South Okanagan Roadhogs, Skha Lake Rd., Penticton, BC; Willie Lemm, (604) 492-5698
[Icons]

Steeeltown Speedway, 3580 Kirk Rd. West, Binbrook, Ontario L0R 1C0; Paul Snyder, (905) 227-7508
[Icons]

Sudbury Organized Auto Racing, 765 Barrydowne Rd., Sudbury, Ontario P3A 3T6; Ken Moore, (705) 524-5339
[Icons]

Thunder Alley Raceway, Lambton Mall, 1380 London Rd., Sarnia, Ontario N7S 1P8; Rob Smith, (519) 882-3361
[Icons]

Vancouver R/C Road Racers, #100-2733 Barney Hwy., Coquitlam, British Columbia V3E1K9; Roger Brown, (604) 945-3888
[Icons]

COLOMBIA

Club De Automodelismo Colombiano, Centro Recreativo Cafam, Kilometro 14 Autopista Norte, Santafe De Bogota, D.C.; Jorge Delgado, 1-6130588
[Icons]

Club De Automodelismo Colombiano, Centro Comercial Guaymaral, Kilometro 16 Autopista Norte, Santafe De Bogota, D.C.; Jorge Delgado, 1-6130588
[Icons]

Garoso Raceway, Avenida Libertadores con Diagonal Gran Colombia, Cucuta; Gabriel Rodriguez, 975-751892
[Icons]

CYPRUS

Racing Model Club, Kennedy Ave. N. 42, Nicosia; Andrea Sotiriou, 493186; fax 493229
[Icons]

DENMARK

Brondby Motor Club, Roskildevej 460 Brondby 2605; Soren Boy Holst, 45-36-472-462
[Icons]

Holstebro R/C Buggy Club, Mozartsvej 7500 Holstebro 2600; Michael Brusholt, 45-97-412-734
[Icons]

Klub 144 Raceway, Bagsvaerdvej 144A, 2800 Lyngby; Henrik Carstens, 45-42-88-3691
[Icons]

Rainbow Raceway, Eriksvej 9 Glostrup, Copenhagen 2600; P. Christiansen, 45-52-848-504
[Icons]

Thor Minirace Odense, Sohussvej 255, Allerso, Odense, behind Alessio Hallen (Sport Centre); Odense; Ulrich Rasmussen, 45-65-303-707
[Icons]

DOMINICAN REP.

Adoca R/C Speedway, FERIA Ganadera, Santo Domingo; (809) 220-5266
[Icons]

La Barranquita R/C International Speedway, Santiago; (809) 582-2303
[Icons]

ECUADOR

Hobby Centro A.C.R.O. Club, Hija a Turi Km O.S., Cuenca-Ecuador; Teddy Jaramillo, 593-7-831-289; fax 593-7-817082
[Icons]

ENGLAND

Chessington Radio Car Club, Surbiton Sport Club, Riverhill Estate, Worcester Park Rd., Worcester Park, Surrey; Ian Spiller, 0252-20657
[Icons]

Hampshire Racing Center, Viables Craft Center, Basingstoke, Hampshire; Tony Eudola 44-1276-61402
[Icons]

Hinckley RCCC, Three Pots Inn, A5 Watling St., Hinckley, Leicestershire; Bruce, 01455-890580
[Icons]

Worcester Model Car Club, Christopher Whitehead High School, Bromwich Rd., St. John's, Worcester WR2 6Q9; Mr. Hardy
[Icons]

FRANCE

Auto Model Club de l'ouest, 45 rue de Menez, Lojehet 29470; Peuziat Michel, 02-98071764
[Icons]

Auto Electron, 35, rue B. de Ventadour, Limoges 87000; M. Boudouil, 55 062763
[Icons]

Crame Roncq, 64 rue du Becquerel, 59370 Mons el Baroeul; Michael Hondeky, 33-20042755
[Icons]

CSRM, 17 Grande Rue Ave., de Saint-Rambert, 69009 Lyon; Pierre-Yves Monfroy, 06 78880852
[Icons]

Lorgies Bolides, rue Beau-Riuz, 62840 Lorgies; Mme. Hourdequin Sabine
[Icons]

GERMANY

Dreykorn Raceway, Heuchlinger-Hauptstr. 43, Lauf, 91207; Hermann Hensel, 09123-81457
[Icons]

MC Koln, Bottgerstr., Worringen 50769; Ralf Habel, 02733-477493
[Icons]

Mini Car Club Dortmund, Kortschstr. 4, 4600 Dortmund 13; Roland Schwan, 0231-213609
[Icons]

Oberhausen-Altstadt, Am Fserder-turm, Oberhausen 46099; Josef Holl, 0208-403676
[Icons]

Panik Raceway, Teutonen Str. 5, Troisdorf 53844; Guido Kraft, 0224-400259
[Icons]

GREECE

EORA-Fanatia Racing, 20 Irinis Ave., Pefki, Athens, 15121; Mr. T. Diamandakis, 8025556
[Icons]

GUAM

R/C International Raceway, P.O. Box GK, Agana; Robert (Buddy) Simpkins, (671) 477-3207
[Icons]

HONDURAS

Autodromo Accion, Quinta Santa Maria, San Pedro Sula, Colonia Rivera Hernandez; Eduardo Hondal, (504) 52-2061
[Icons]

HONG KONG

ACO Racing Track, Mt. SS Cheng, M.W. Ping che, Fanling, (852) 2370-0723
[Icons]

Kingsville Buggy Arena, Wong Chuk Yeung Village, Shatin, N.T.; Pak Yeung, (852) 607-0828
[Icons]

INDONESIA

1st Circuit, Kompleks Villa, Kalijudah Indah, Surabaya; 62-31-5681965


Cipaku Indah Speedway, J1 Cipaku Indah II/2, Bandung 40143; Cipaku Indah Hotel, Erwin Lewi, 62-22-218-228, fax 62-22-210-223


Karinda Off-Road R/C Car Model Circuit, Perumahan Bumi Karang Indah, J1 Karang tengah Rayam lebak bulus, Jakarta-Selatan 12440; Wwied W. Soedarmadi, 62-21-7900878


Pondok Cabe Circuit, JL. Kunir No. 83, Pondok Cabe, Ciputat, Jakarta; Ali Agus Salim, 7403568-9; fax 7491533


Uno 168 Off Road Track, Wicaksono Suryanto, Nginden Semo War 42, Surabaya; 62-31-5675133; email: wsurya@sbj.centrin.net.id


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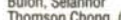
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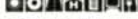
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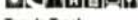
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Chris's BACK LOT

Crime doesn't pay BY CHRIS CHIANELLI

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. My email address is: chrisc@airage.com.

This year's Kyosho World Cup was the best yet. Thirty teams from around the world met in an exotic Pacific paradise setting, and everyone had fun! But you'll have to wait until the next issue for that story. This month's story is about how yours truly didn't follow his own advice. You know—the advice I'm always giving you guys about how hop-ups are not only no substitute for smooth driving, but can also sometimes cause more problems than they're worth.

You may remember that at the last Kyosho Cup in Tokyo, I had one of the slowest Mini Coopers on the track and still managed to finish fifth out of 15, even with a long pit repair to replace a broken front suspension part. That's because I stayed on the track and had only two crashes—one minor, one major—in the entire 45-minute race.

Well, this year, when I learned that the "media race" would be held using stock Kyosho Quad Riders, something evil overcame me and forced me to cheat, big time! My Quad Rider was equipped with a larger .15 Kyosho engine, O.S. CV carb, tuned pipe, full ball-bearing set, reworked diff and Pro-Line Road Hawgs. Oh, I almost forgot: the suspension was lowered so much that there was only $\frac{1}{4}$ inch of ground clearance.

To make a long story short, after two days of qualifying heats and finals for the Kyosho Cup, it was Saturday and time for the "media race"—just before the main event—and I was ready. During practice time, all heads turned when I revved up my engine in the pits. No one had ever heard such a frightening scream come from Quad Rider! Oh, yes! I was feeling extremely self-confident with my superior machine when suddenly, my cheating world of crime collapsed around me. The Kyosho staff was placing jumps on the track. Oh, no! Anything but that! Evidently, Kyosho President Aki Suzuki had gotten wind of my $\frac{1}{4}$ -inch-clearance Quad Rider and decided that he'd fix my wagon but good. You see, he and I have what you might call an "adversarial friendship." Seems I have that with all my friends?.... hmm anyway, as the humbling photos below cruelly illustrate, my nefarious plan continued to fall apart at every "turn" from then on. I came in dead last.

The moral? Crime doesn't pay; smooth driving does. But who cares? Hawaii is beautiful. ■



I was a cheating bad boy who got what he deserved. But the beautiful island girls were there to console me and change my criminal ways. And they are some of the most beautiful women I have ever seen. Wait till you see the World Cup article next month!



Above: here I am a few hours before the race feeling very confident with the Hawaiian-style Quad Rider I named "The Hula Hauler." Little did I know what lay ahead. Right: here is one of the greatest people in our hobby—Aki's father, Mr. Suzuki, or for those who know him—Suzuki-san! A close look at this picture (taken on Friday), reveals an expression on his face that indicates he knew what was in store for me the next day—but wasn't telling.



Right: well, here I am—off to a really bad start. The guy way at the end of the start line is my pit man, Eric Vasutin from Castle Hobbies in San Jose, CA, trying to get my highly modified—and highly finicky—Quad Rider started. Eric was the technical advisor to the American teams. If Eric can't get an engine started, no one can.



Below: after Eric finally got the car started, Quad-Man got even with me for making him wear a skirt and bailed early in the race. The rules state the rider must stay with the vehicle, so it was back to the pits. Quad-Man refused to go on until I threatened him with a bottle of plastic-melting solvent.



Do you know what happens when you try to jump a vehicle with only $\frac{1}{4}$ inch of ground clearance? You get crushed and gassed, all at the same time. Shortly after this photo was taken, Quad-Man's skirt caught fire.



This was the end for me and Quad-Man. About 20 minutes into the 45-minute race, our oversized engine blew the clutch and quit for the fifth and final time. The humiliation was more than Quad-Man could bear. To save face, he committed hara-kiri by separating at the waist and throwing his upper half into heavy traffic. I did penance by track marshaling for the second half of the race.

I wish Quad-Man were here today so I could tell him that our efforts were not totally in vain. We did create uproarious spectator laughter with our antics—and that's something. Come to think of it, to me, that's everything!



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